March 24, 1962
Vol. 162 — No. 12

Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY

Estimated 10,000,000 visitors to Seattle's 1962 Century 21 World's Fair will have opportunity to see latest communication developments in Bell companies' exhibit building in fairgrounds shown here. The fair's futuristic theme "Man-in-the-Space-Age" is a natural for telephone industry's displays. See story on page 24.

Circulation This Issue
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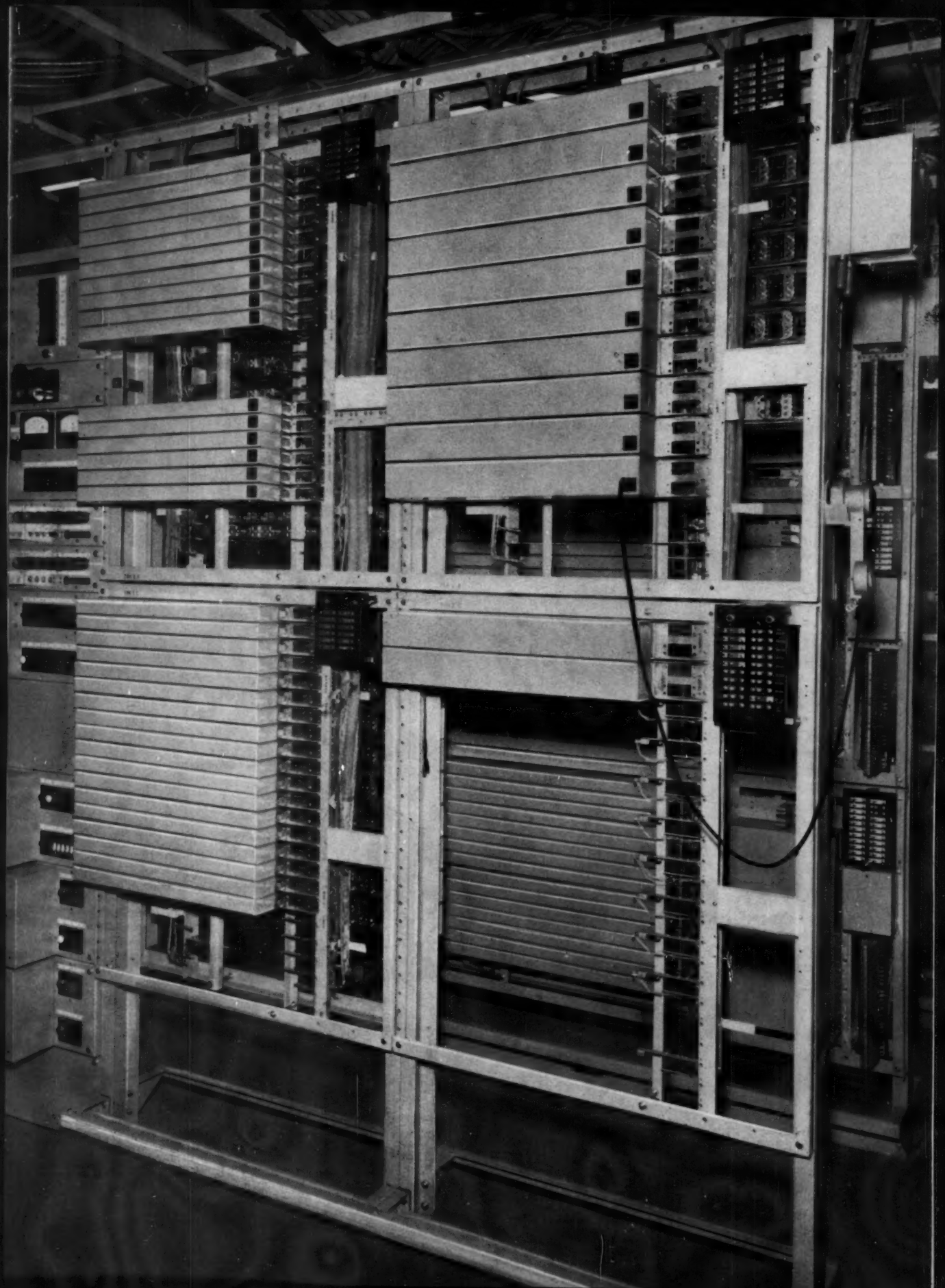

FLASHES AND PLUGS

ENTERPRISE IS NOT DEAD. Those responsible for selling space in the telephone book's Yellow Pages, reports the Chicago (Ill.) "Tribune", state that the variety of new listings reflects the initiative of American business. Each year, the Reuben Donnelley Corp., publisher, adds a dozen or more categories to accommodate businesses which don't fit any of the 3,600 or more existing categories.

Among the new ones is a listing for "Ultrasonic Equipment and Supplies". In current pages, nine companies offer to help the reader-customer with chores that range from cleaning machine parts to detecting burglars—all through the magic of these "silent" sound waves.

Under "Office Records Stored", one may find an underground storage company that will provide bomb-proof storage; or another that will, for $2,500, put 66 rolls of microfilm in a private room with a combination door.

If shoplifting plagues the customer, he may look up, under "Shoplifting Prevention Devices", a company which uses mirrors, closed-circuit TV, or electronic methods, to detect the wrongdoer . . . Under "Juvenile Furniture Repair", a parent may find a service that will help him keep ahead of his progeny's tear-it-down impulses . . .

And in this same book of Yellow Pages, one can find both "Missile and Rocket Instrumentation and Guidance Equipment" and such a venerable listing as "Horseshoers"!

•

TELEPHONE ZOO. Are you up on the latest plant man's slang for line insulation test equipment? It's a "wired bird dog" or, if you will, "an electronic bird dog."

To the subscriber, whose "trouble" may be solved from the office without his ever knowing he has a "trouble", this is indeed one of the marvels of modern telephone service.

•

ORCHIDS FOR A DYNAMO. This headline showed up in a Vermont daily, known for its staid and stolid approach to things, over a society page story about a veteran traveling sales representative, who had retired, married again, and settled down in his home town:

"Old Power Plant Reactivated".—"What's New in Electronics," Cleveland Institute of Electronics.

•

IN A STEW ABOUT BARBECUE? Nine pounds of barbecued meat was stolen from a Fort Worth (Tex.) cafe.

Soon afterward, the proprietor got this telephone call:

"Man, that sure was good barbecue!"

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Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY

SINCE 1901

March 24, 1962

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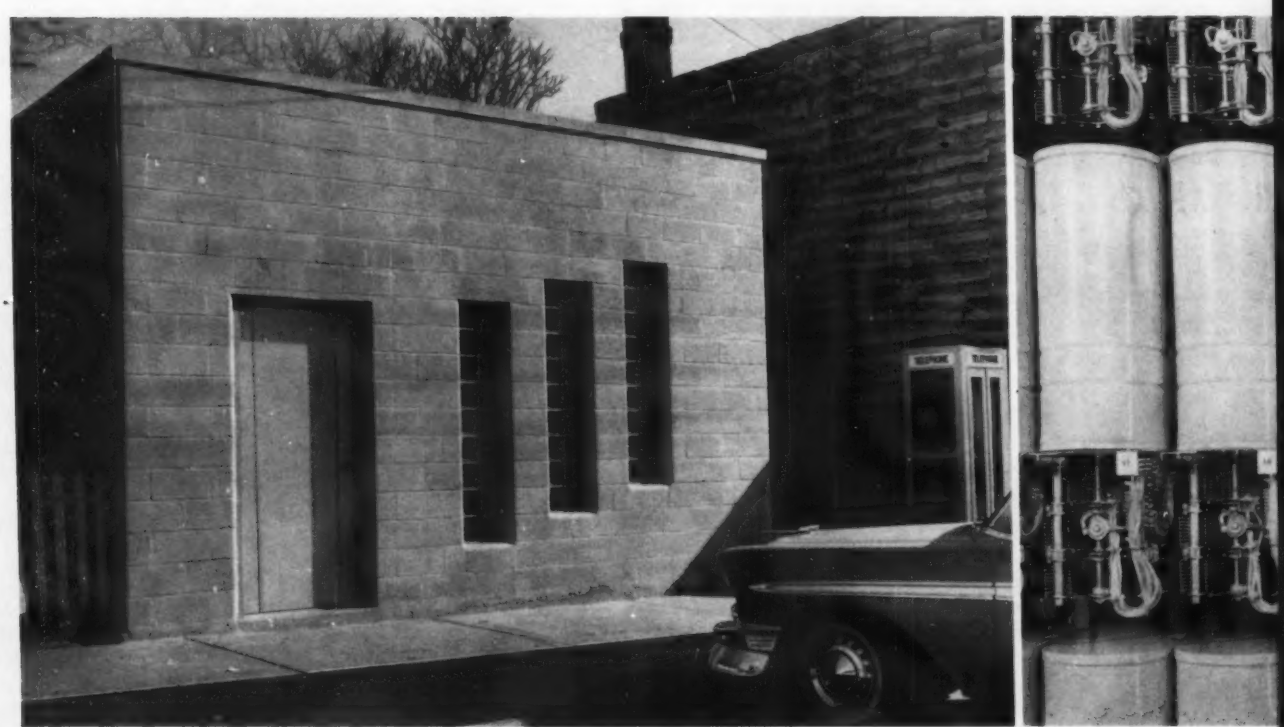
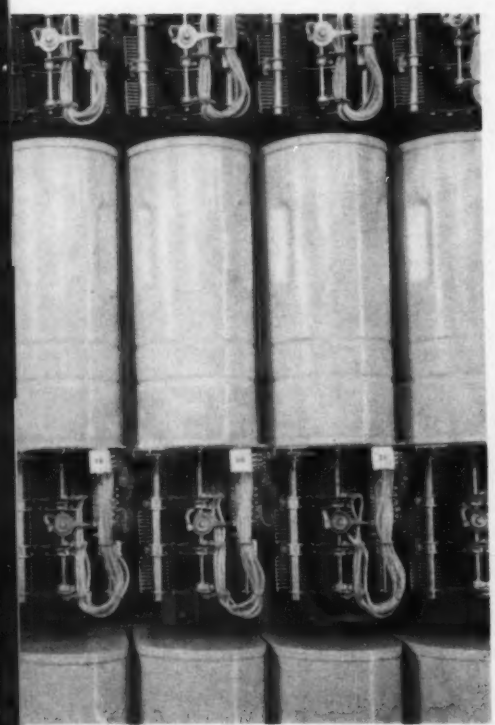


reports P. T. Fritchen
MANAGER, FRITCHEN, INC.



P. T. FRITCHEN is probably the busiest man in Dorrance, Kansas (maybe in the United States). First, he's the civic-minded mayor of this farming community, which lies near the center of the nation. Second, he's an electrician by trade and does wiring for new buildings. Third, he manages Fritchen, Inc., the local telephone company. In this last capacity the versatile Mr. Fritchen recently took an important step: conversion of Dorrance to dial service.

The decision for dial conversion climaxed three years of advance preparation. Back in 1958, P. T. Fritchen began rebuilding his entire outside plant to accommodate dial. As he explains the situation: "Dorrance has had normal growth over the years and our service has remained efficient. In time, however, this continuing growth would obsolete our manual equipment and force us to go dial. And this time was not far off."

One factor helped expedite Fritchen's decision: the surrounding exchanges had converted. Mr. Fritchen visited some of these exchanges. He watched their dial equipment in operation. He saw figures on their improved earnings, increased traffic and lower operating costs since conversion. "In many of these exchanges," says Mr. Fritchen, "I found telephone men wishing they had converted to dial years sooner."

During the years of rebuilding his outside plant, P. T. Fritchen met with AE representative, Gerald Miller. Gerald's experience in the field proved helpful in discussing dial conversion problems. The outcome of these discussions: AE dial was selected. "I'd say the main reason for choosing AE dial equipment," remarked P. T. Fritchen, "was keeping up with community growth. With AE, we can expand to any size easily and economically. Also, AE gives you unlimited trunking range and simple construction which insures low maintenance."

Gerald Miller surveyed Fritchen's daily traffic volume. A projection of these figures gave a good estimate of Dorrance's traffic volume in the near future.

Conversion to dial is a major capital investment, which means financing is a vital consideration. P. T. Fritchen met with Gerald Miller and George Summerscales, AE district manager, to arrange a $30,000 loan under the AE Finance Plan.

A new exchange building was planned for Fritchen's conversion. Here, the important factors are economy in cost and maintenance, plus a pleasing appearance. Exchange buildings are difficult to design since efficient equipment layouts often violate architectural concepts of mass and form. Fritchen's new building was an example of harmonious design and efficiency. The architects name: P. T. Fritchen. His design took in future growth and changes, air moisture content, adequate aisle space. Even lighting was planned for proper intensity.

AE specialists supervised the installation of Fritchen's dial equipment. They helped assign new numbers for the community and assisted in preparing a directory. A new fire-reporting system was worked out by Gerald Miller and fire officials. It put 10 stations on a common fire-reporting line, which was not connected to line equipment. The system gives faster service and eliminates delay during emergencies.

In December, 1961, Fritchen, Inc. converted to AE dial. Today, it serves 250 stations over a 180 mile area. Since conversion, three operators have been released and three toll trunks put in service to Russell, Kansas. "Folks are really enthusiastic about dial service," observed P. T. Fritchen. "Thanks to AE dial, they're getting better service and we're selling more services." *P.S.* Thanks to AE dial, P. T. Fritchen will probably be re-elected mayor.

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SPECIFICATIONS—FCC Type Accepted

Receiver-Transmitter: 144-174 Mc, 2-channel (max.), 4-channel (max.) models available
RF output: 22.5 watts into 52 ohm load
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Frequency Stability: within 0.0005%
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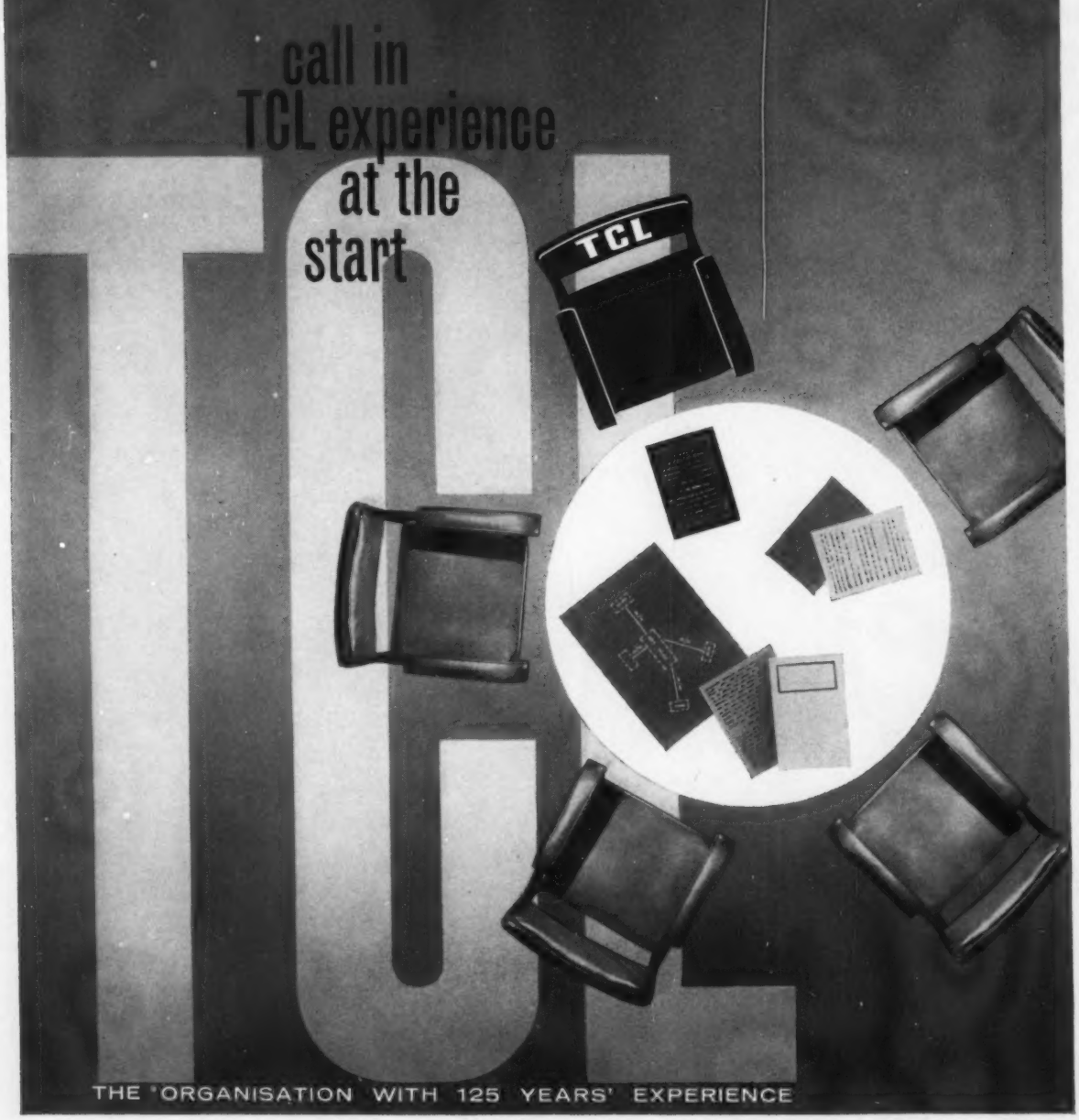

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SOUTHEAST

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Inter-Mountain Telephone Company
Bristol, Tennessee

General Telephone Company of Florida
Tampa, Florida

Florida Telephone Corporation
Ocala, Florida

Inter-County Telephone and Telegraph Company
Ft. Myers, Florida

The Lancaster Telephone Company
Lancaster, South Carolina

Carolina Telephone and Telegraph Company
Tarboro, North Carolina

North Carolina Telephone Company
Matthews, North Carolina

NORTHEAST

Northern Ohio Telephone Company
Bellevue, Ohio

The Lorain Telephone Company
Lorain, Ohio

Telephone Utilities of West Virginia, Incorporated
Webster Springs, West Virginia

The Bell Telephone Company of Pennsylvania
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Some time ago, sales promotion kits were mailed to all Independent Telephone Companies. They are still available for the asking. A kit for the user is packed with every Electronic Secretary set. These kits help to sell prospects (and keep them sold) on telephone answering service.

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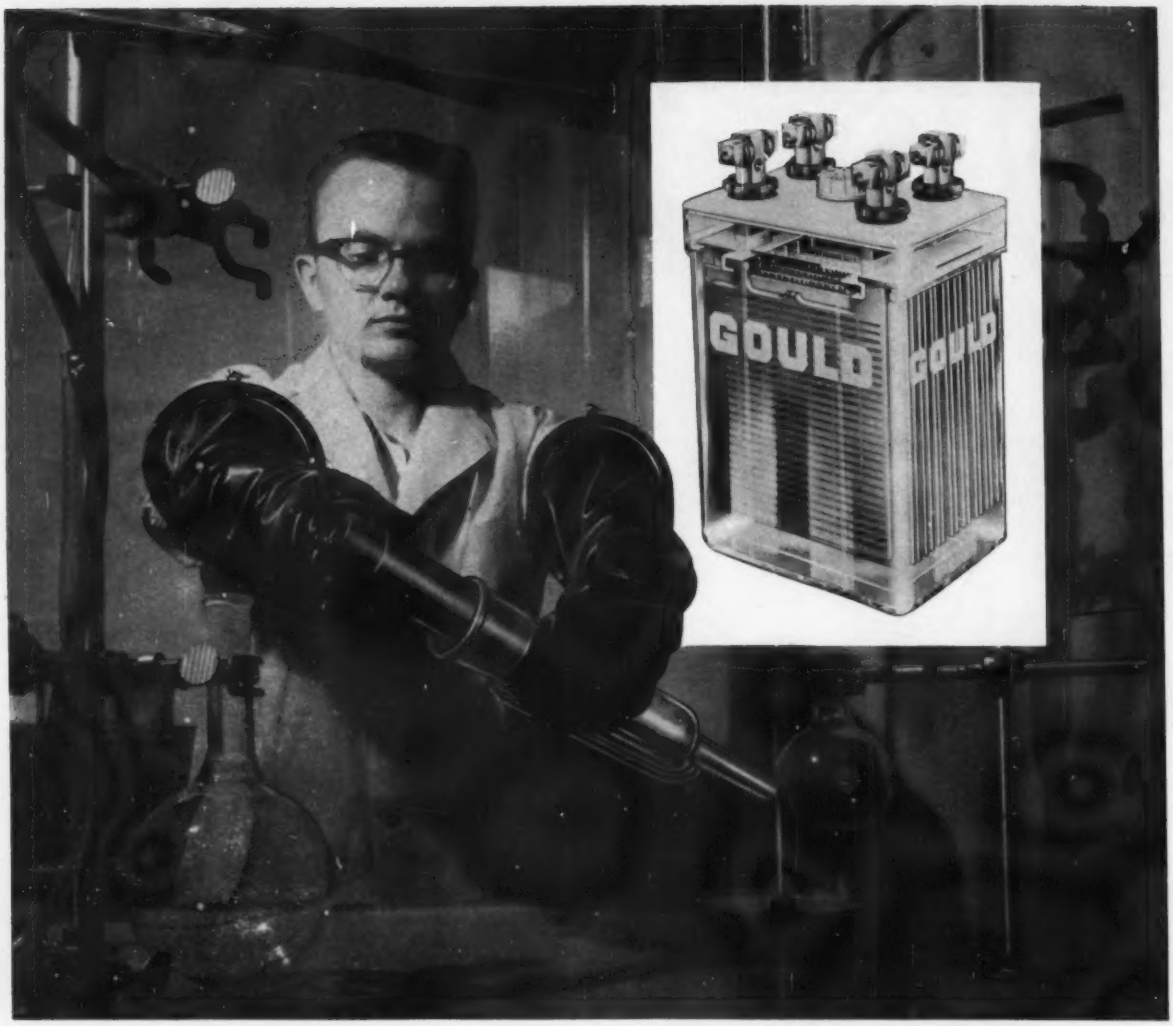

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IN THE NATION'S CAPITAL

BY LAWRENCE J. HOGAN, WASHINGTON EDITOR
and President, Larry Hogan Associates,
Public Relations Firm.

FCC Chairman Minow testifies against President's broad ownership satellite communications corporation before House committee . . . . He favors ownership by common carriers and recommends safeguards against domination by any organization . . . . Committee's warm response to Minow's recommendations indicates President's proposal has little chance of enactment.

NEWTON MINOW, chairman of the Federal Communications Commission, has demonstrated on a number of occasions that he has the kind of "guts" which are uncommon in the Capital. He took on the entire broadcasting industry singlehandedly by saying aloud and often things about television which other government officials have been whispering under their breath for years. The broadcasters can be powerful opponents, and Minow's criticism cut them to the quick of their picture tubes and triggered a massive opposition salvo by the broadcasters' big guns. Minow stood his ground.

Now the fearless commissioner has taken on his own Kennedy administration. Flip-flops are the favorite exercise along the Potomac's banks and agency heads have been known to change position in mid-sentence when someone higher up on the chain of command hinted at a contrary view. Not Minow.

He testified before the House Interstate and Foreign Commerce Committee (as he did before the Senate Space Committee) that the FCC is against provisions in the President's bill which would permit unrestricted ownership of the proposed satellite communications corporation. The FCC, he said, favors limiting stock ownership in the corporation to international common carriers. He said this would "expedite maximum use of the (satellite communications) system on a world-wide scale."

The administration bill is sponsored by House Commerce Committee Chairman Oren Harris (D., Ark.). Minow supported bills proposed by Representatives George P. Miller (D., Cal.) and Olin E. Teague (D., Tex.) which would restrict participation in the Satellite Communications Corporation to common carriers.

He said corporation ownership by common carriers only, "would give maximum assurance that its facilities and operations will be responsible to the communications needs of the public," and "would facilitate the orderly integration of satellite facilities in existing world-wide communication network."

Minow said, the FCC strongly recommends the imposition of specific safeguards to prevent abuses such as domination by a single firm of the policies and operations of the satellite communications corporation.

Minow recommended that:

(1) Each carrier be limited to equal representation on the corporation board.

(2) The corporation be required to use competitive bidding to procure equipment and services.

(3) The FCC be authorized to determine the appropriate technical characteristics of the satellite facilities.

(4) The FCC be empowered to allocate satellite channels among authorized carriers and ensure non-discriminatory use of the system upon reasonable terms.

Minow said these and other safeguards, in combination with continued governmental surveillance of the affairs and operations of the corporation, should effectively serve the public interest to prevent abuses of dominance or conflicts of interest.

Three Democratic and three Republican committee members praised the FCC position. Some of them predicted privately that the administration bill, introduced by Representative Harris, was virtually dead. The congressmen subjected Minow to very gentle, friendly questioning, in contrast to the grilling they gave Edward C. Welsh, executive secretary of the National Aeronautics and Space Council (NASA), who presented the case for the administration's bill.

Rep. Samuel L. Devine (R., Ohio) told Minow "It's refreshing to have a member of the administration and the rest of the FCC serving as stalwart advocates of private enterprise."

Representatives Ancher Nelson (R., Minn.), J. Arthur Younger (R., Cal.), Robert W. Hemphill (D., S. C.), Horace R. Kornegay (D., N. C.) and Leo W. O'Brien (D., N. Y.) all praised the FCC stand.

Minow defended the FCC against charges that the commission had not effectively regulated AT&T by noting that "since 1935 there have been a large number of . . . reductions with only one general increase in long distance telephone rates." He said: "We feel that within the limits of our available resources, we have protected the public's interest in just and reasonable rates for common carrier services."

Minow said there has been no indication that carriers would seek rate increases to finance their investments in a satellite communications network. He said the commission would take a hard look at proposed rate hikes.

The next day, George C. McGhee, Undersecretary of State for Political Affairs, told the committee the Department of State endorses the administration bill.

McGhee said: "Better communications also offer one of the most hopeful ways of bridging the present sharp political divisions between the nations of the world." He said the possibility of cooperation in space communications "has special attractiveness" in line with the President's directive to explore avenues of cooperation with the Soviet Union. The United States is hopeful, he said, that Russia would "join with us in implementing" a global and non-discriminatory satellite system." What America does to develop and use communications satellites, "and the spirit in which we do it, are being closely watched by the other countries of the world."

He said it is important for the accomplishment of the national objectives of the United States that an international communications satellite system developed under U. S. leadership, come into operation as soon as possible. He called for passage "during this session" of the Harris Bill which would create a private corporation with broad public ownership.

McGhee said the United Kingdom, France, Brazil, Italy and Germany are prepared to join with the United States in space communications experiments later this year. And other countries also might join in these and other experiments. A satellite communications network, McGhee said, "promises the prospect of simultaneous viewing by TV in all parts of the world of the key deliberations of the United Nations." In addition, he added, it would make possible increased contacts through telephone, broadcast and TV exchanges with other nations.

When Minow testified, he had endorsed giving the State Department a voice in the satellite corporation's negotiations with other nations and foreign companies interested in participating in the system. Representative Hemphill asked "How much interference or sabotage would you expect from the State Department?"

Minow replied "None."

FCC Commissioner T. A. M. Craven, the commission's space expert, also appeared at the hearing. He testified that there was little likelihood that any nation would use the space communications network illegally, since most nations have lived up to their agreements with the International Telecommunications Union.

The House committee's warm response to Minow's recommendations that the proposed communications satellite corporation be owned solely by companies in the overseas communications business indicates President Kennedy's proposal for broad public ownership of the corporation has little chance of enactment.

The backing given FCC's proposals made it certain they will receive sympathetic consideration by the committee, which has shown little interest in the White House plan.

The Senate Space Committee in earlier hearings also severely criticized the administration bill and was receptive to the FCC recommendations.

The extent of the administration's worries about its bill's chance for passage is demonstrated by the fact that one of its top luminaries—world junketing Attorney General Bobby Kennedy—as of this writing—is scheduled to testify before the committee on Mar. 20.

The wags will no doubt observe that the President is lucky to have a member of the family in the country to take on this chore for him.

(The attorney general, addressing an Advertising Council meeting in Washington said that his brother, the President, greeted Lt. Col. John Glenn after his historic triple orbit of the earth by saying, "I was very happy to have you make the trip even though you are not a member of the family.")

(There's a rumor circulating about the Capital that when her mother returns to this country, Caroline Kennedy will make a good-will trip to Disneyland.)

Assistant Attorney General Nicholas Katzenbach, who presented the administration's case for the bill before the Senate Space Committee, was originally scheduled to testify, but the heat of the battle apparently made it necessary for the President's brother to substitute for his assistant. It's questionable as to whether the attorney general is as expert in space satellite communications as he is in international diplomacy. One can predict that his testimony will weigh heavily with forebodings about anti-trust bogeymen.

There is undoubtedly much to be said for the position represented by the President's bill and for that represented by Senator Kerr's bill, calling for limited ownership of the satellite corporation. The important thing is that the space satellite communica-

(Continued on page 49)

U.S. C. of C. Urges Private Ownership Of Space Communications Satellites

Private ownership of communications satellites was urged on Mar. 15 by the Chamber of Commerce of the United States as the best way for this country to move ahead in space communications.

The National Chamber said that otherwise "Our chances of being first in this endeavor will be jeopardized . . . ."

In order to protect the public from the danger of monopoly, the chamber said a satellite communications system should be subject to regulation by a government body such as the Federal Communications Commission.

Views of the National Chamber were expressed in a statement addressed to Sen. Robert S. Kerr (D.-Okla.), chairman of the Senate Aeronautical & Space Sciences Committee.

The Chamber said:

"It is most important that this nation be first in the field of space communications. In 1955, a member of private industry outlined the first concrete proposals for a satellite medium. Many millions of industry research dollars and much research effort have since been expended in developing a practical space communications system. Our chances of being first in this endeavor will be jeopardized if the responsibility for this enterprise is taken from those that have given us a good start, and handed over to a governmental agency, newly created and otherwise handicapped by inexperience and burdensome governmental procedures. Private industry, with its background of experimental work, will be able to move ahead promptly to establish a space communications system if Congressional approval is granted.

"It should be kept in mind that space communications is only an extension of the existing systems of national and international communications, and that the satellite program for years to come will supplement, not replace, cable and radio services now in existence."

The Chamber added that, "speed in arriving at a final decision regarding the question of ownership and operation of the space satellite system is of utmost importance. Until Congress acts, advance planning will be hindered. If Congress fails to decide the problem in this session, an entire year will be lost before another opportunity will be presented."

New Property Studies

May Justify Higher Tax Depreciation

For Telephone Companies

By WILLARD F. STANLEY

WHETHER or not a plea is made by the telephone industry to the Treasury Department for faster write-off of the telephone companies' properties for income tax purposes, and whether or not such plea is successful, a considerable number of telephone companies may feel that there is sufficient reason to believe that a faster write-off is warranted, in the case of their properties, to justify them in making an engineering study of such properties to determine the present rate of deterioration thereof, and the consequent rate of depreciation which should be allowed for tax purposes.

For some time past, following authorization of faster write-offs for properties of the textile industry, the Treasury Department has been engaged in studies to determine proper current depreciation rates with respect to other industries. It is understood that six specific basic industries are first being analyzed and that other industries applying for faster write-off rates will also be considered.

It has been the general consensus that the new allowed rates would be expressed in the form of adjustments to the general basic rates now set forth with respect to various property classifications of each major industry in "Supplement F" issued by the Treasury Department.

There appears to be a divergence of opinion as to how far the Treasury will be able to go in its present studies which are expected to be concluded before the end of Spring, 1962. Some feel that the Treasury may be able, within this time, to complete adjustments of rates in Supplement F with respect to properties of all major industries, while others think that the changes will have to be limited to specific industries.

It is true, of course, that the Treasury studies need not necessarily end with the Spring, and that those industries with respect to which the Treasury was unable to complete adjustments by that time might be examined in subsequent periods.

Engineering studies by individual telephone companies may well be warranted in justifying higher rates of write-off in many cases, but it appears that under the existing circumstances, those telephone companies which have in mind such engineering studies, would, if the studies have not been completed or commenced, be well advised to defer making such studies until they have had a chance to see what, if anything, is done for the telephone industry as a whole under the Treasury studies.

If the Treasury is able to complete Supplement F adjustments as to all industries, or if the telephone industry should make a successful plea for higher depreciation rates for tax purposes, then the new rates allowed might be high enough either to exceed the rate deemed warranted by an individual engineering study of the properties of a particular system, or be so close to such rate as not to justify the effort and expense which would be involved in an engineering study.

One important aspect of the matter is the date after which the increased depreciation rates found by the Treasury shall be effective. The consensus here is that they will probably be made effective for 1962 and subsequent years. This is in accordance with the general principle that, so far as possible, changes in income tax treatments should not be made retroactive, and is also important to the Treasury in limiting loss of tax revenue.

If, as seems likely, the new rates would not apply to 1961 and prior years, then certain telephone companies may wish to proceed with the special engineering studies, with the thought of applying the higher depreciation rates produced thereby to periods prior to 1962, as well as to that and subsequent years.

Here again, however, it would seem the wisest course to see how the increased rates are treated by the Treasury as to their effective date before proceeding with a special study. Although deemed unlikely, it is possible that the new rates might be applicable to 1961 (or even to earlier years where the returns were still "open"), in which case the engineering study might prove superfluous.

Those telephone companies which, prior to Mar. 15, 1962, applied for an extension for filing their 1961 returns (this refers to corporate returns only; individual and partnership returns not being due until Apr. 15), would have until June 15 to await the results of the Treasury's action and then make the study or not as seemed advisable. A further extension, until Sept. 15,

(Continued on page 54)

A New Concept in

PRE-WIRING CUSTOMER PREMISES

By George W. Wall Jr.
President
Orbit Industries

and

Harry W. Sherwin
Supervising Engineer, Merchandising
Michigan Bell Telephone Co.

PRE-WIRING or "Advance Wiring" plans which provide for the installation, during construction of a residence, of outlets with pull wires at anticipated locations where extension telephones or jacks may be desired is well known to the telephone industry, and many articles have been written on this subject.

It is universally agreed that concealed wiring is desired by the customer in modern homes, that such installation must be planned or installed during construction, and that pre-wiring plans definitely encourage the sale of extension telephones and additional lines.

Cuts Installation Costs

The installation of extensions after a home is built is costly and usually unsightly for a new modern home. Telephone companies today are looking for new sources of revenue from residential subscribers, and products already available for increasing revenue pose a serious problem of providing neat and acceptable wiring at reasonable installation costs. Consider the wiring problem of installing compact telephones with power for lights, centralized ringing, telephone door answering, and home intercom service (all good revenue producers), and it is at once apparent that acceptable appearance and economy of installation dictate the adoption of "pre-wiring plan."

Recognizing the advantages of "pre-wiring" and the demands of new merchandising programs for interior wiring, the Michigan Bell Telephone Co. recently developed, and is installing, a new concept in "pre-wiring" residential customer premises. Basically this new program consists of the actual installation of interior telephone wiring but differs from other plans such as "advanced wiring" and "planned service" where brackets are set with pull wires, in that no brackets, jacks, or connecting blocks are installed during the pre-installation of interior wiring.

The objectives of the Michigan Bell pre-wiring program were to install, with a minimum outlay for material, a modern installation of concealed telephone wiring for all foreseeable future telephone service as may be required by the subscriber, including additional lines, home intercom, door answering and centralized ringing, and to accomplish this installation during the construction of the residence when the wiring can be concealed with a minimum of labor costs.

In addition to labor saving, the subscribers' awareness of the pre-installed telephone wiring and the appeal of concealed wiring was expected to incease service development. Preliminary results indicate that the latter objective has succeeded to the extent of an average of approximately .4 increase in the number of extensions over the average development factor for post-wired residences.

Four Basic Tools

To accomplish and implement its program, the Michigan Bell Telephone

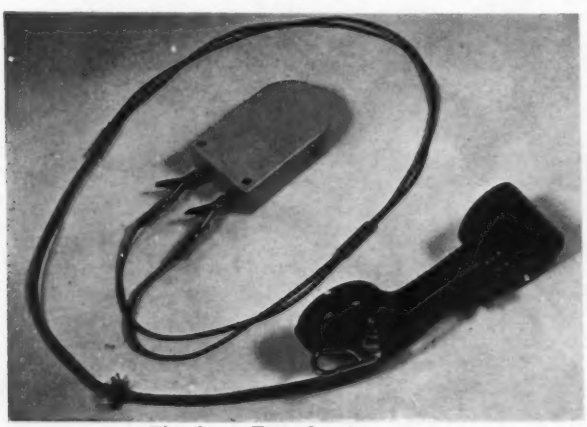


Fig. 1. Tone locator.

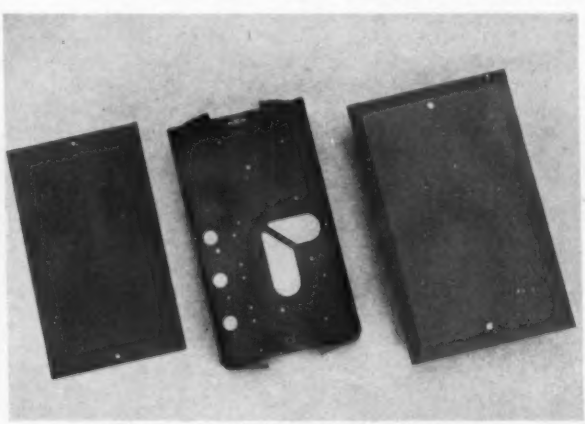


Fig. 2. Telephone service box.

Co. developed four new basic tools and fixtures. They are a tone locator *(Fig. 1)*, telephone service box *(Fig. 2)*, self anchoring wall bracket to accomodate terminal or jack *(Fig. 3)*, and wire guide ring *(Fig. 4)*. The function of these tools and fixtures will be explained below as a typical installation is described.

The system of pre-wiring is divided into two phases: "Installation of interior wiring" and "establishment of service."

The installation of interior wiring requires a visit to the building during construction prior to installation of wall covering (lath or dry wall), but after framing and studs have been erected and all electric wiring installed.

Location for Protector

A location is first selected, usually in the utility area, for the protector which is to be housed in a modern telephone service box *(Fig. 2)*. This service box has provision for flush mounting between studs and has been designed to accommodate protectors, terminal board, door answering and intercom control units. After mounting the service box, half-inch drive rings are placed on the studs adjacent to the already installed electrical outlet boxes at all potential telephone locations, except for kitchen locations where a drive ring is placed for a wall telephone set. Drive rings are also placed for door answering locations and centralized ringer location.

The cable to be installed consists of an inexpensive six-pair unsheathed cable. Starting at the service box, the cable is run so that a horizontal loop is placed around the inside perimeter of the house on top of the attic joist or rafters and returned to the service box. In multi-level houses, additional horizontal loops may be required but each loop must originate and end at the service box.

One-Man Operation

In order to permit a single installer to efficiently make the horizontal cable runs, the cable guide rings *(Fig. 4)* are temporarily clamped on the top of the ceiling joists to allow pulling the cable around the inside perimeter of the house. After installation, the cable guide rings are removed and returned to the installer's pre-wiring equipment kit.

The cable end is taken to the telephone service box and starting from the cable end, vertical loops are pulled down through a hole which has been drilled in the upper plate about 4 inches from the stud adjacent to the stud on which the drive ring has been located. The resulting diagonal run of wire between the two adjacent stud sides indicates the space between studs available for future bracket installation. The vertical loop is passed through the drive ring twice to secure it and extended approximately one foot in length. This 1-foot loop is then twisted and coiled and put back into the wall space.

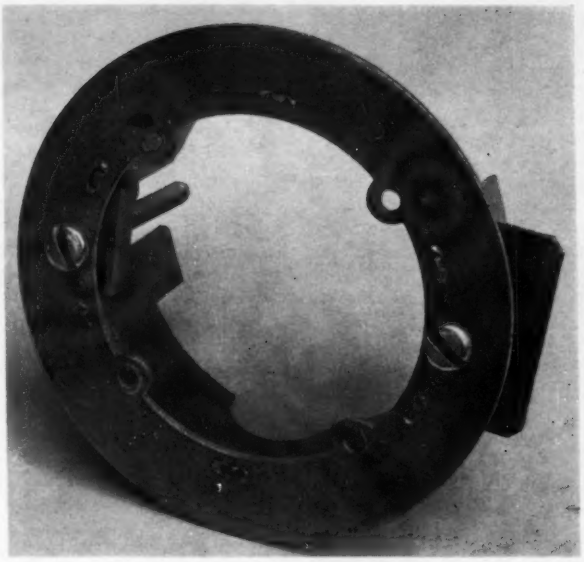


Fig. 3. Wall bracket.

Two-Story Homes

On split level homes and two-story homes the lower level is reached by drilling through the floor plate of the upper level and running the vertical loop used on the upper level through th floor plate to the lower level *(Fig. 5)*. This process of vertical loop is repeated, working back to the cable reel at the service box location, with each potential location for telephone service having a 1-foot long coil of twisted cable.

The station protector ground wire should be placed at this time using No. 12 ground wire for this purpose in the event the house ever requires a second telephone wire. The grounding sources selected should be accessible to inspection and repair after the house is completed. Suitable locations for ground clamps are either on a cold water pipe in the basement, or behind a bath-tub on the cold water pipe, where a removable panel is always placed for plumbing inspection. The pre-installation is completed by affixing the disposable plain metal cover to the service box to exclude plaster.

Service Given on Order

After the home is completed and the customer occupies the new home, service is established upon order. The potential service locations are determined by the use of a Tone Locator *(Fig. 1)*, a tone generator *(Fig. 6)*, and a lineman's testset. At the service

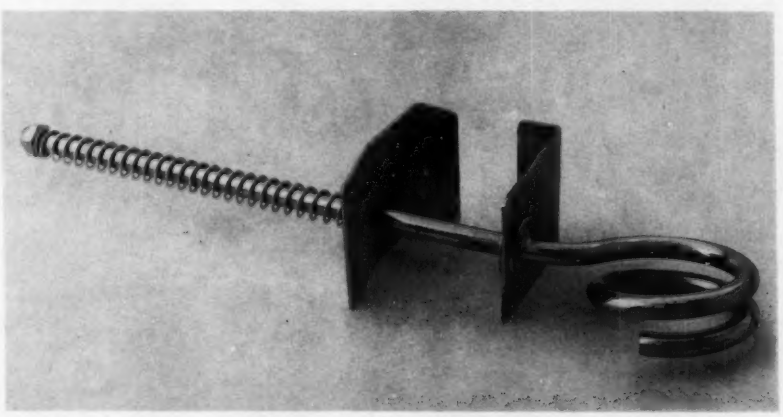


Fig. 4. Wire guide ring.

box all conductors at one end of the cable are stripped and twisted together. The conductors at the other end of the cable are stripped, divided into two groups of three pairs and the conductors of each three pair twisted together. The ends of each three pairs are connected to the tone generator. The tone introduced in the cable is used to locate the concealed wire. The tone locator with lineman's testset attached is passed over the upper wall surface until the tone is located.

Following the tone diagonally down the wall, the sound of the tone will increase as the coil is approached. When the tone is at its loudest point, the locator is over the loop. A 2¼ inch hole saw is then used to drill a hole through the wall surface to give access to the cable coil and accommodate the self anchoring bracket *(Fig. 3)*, to which can be attached connecting block or jack, and face plate. Installation of the drop, ground, protector, and connection of the conductor pair or pairs used and attaching the attractive finished cover to the service box completes the installation.

Wide Choice of Locations

Future installation of extensions, centralized ringers, door answering and home intercom are accomplished by repeating the above procedure.

This new concept of "pre-wiring" allows the customer a wide choice of telephone locations at practically any point in the house and the installation of many new services, all with concealed wiring and with economical labor cost to the telephone company.

The installation of six-conductor sheathless cable with a loop installation, starting and returning to the telephone service box, has several additional advantages. Power for dial lights and light on compact telephones can be distributed from one transformer to all telephone locations. In the event service should fill all six pairs, a pair loop may be cut at the last utilized access point, thus releasing the return loop of this pair for other service since it also returns to the service box.

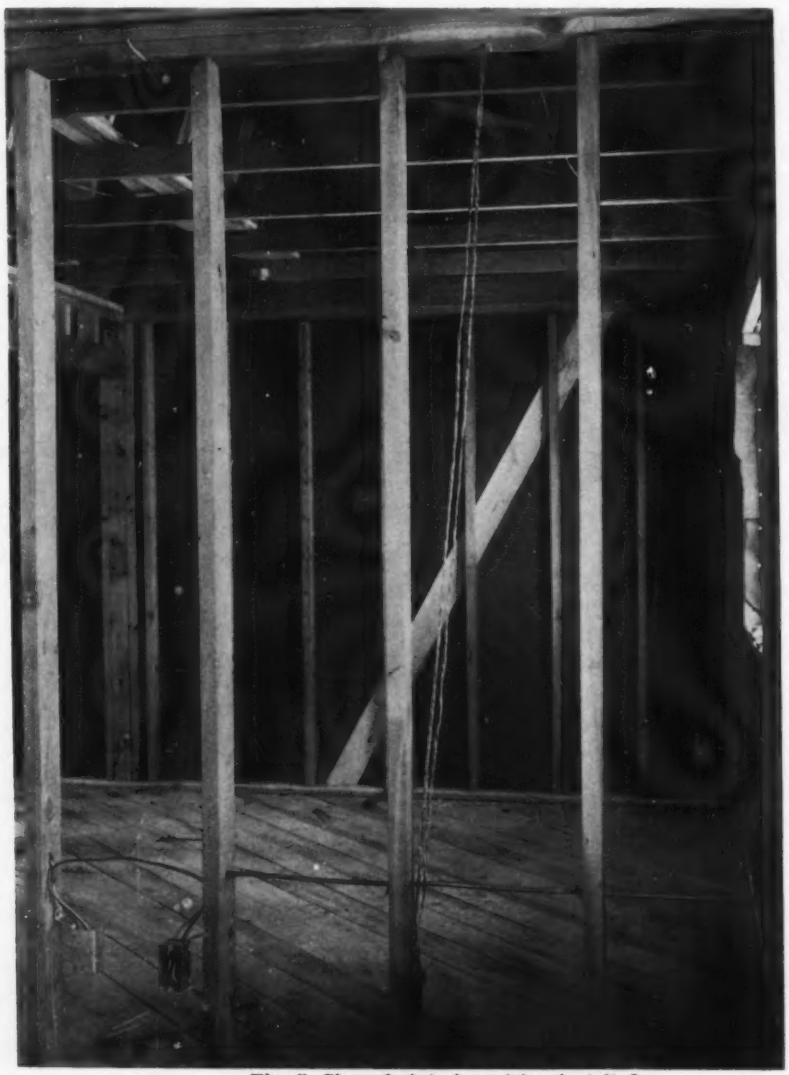


Fig. 5. Six-pair interior wiring installed.

Fig. 6. Tone generator.

Methods of Charging for Costs

The average installation of pre-installed interior wiring has required approximately 500 feet of cable at a cost of $30, including labor and service box. This cost can be assumed by the telephone company, where management decides that service development plus labor saving on subsequent installations warrants universal residential installation. On the other hand, management may apply this plan only where reimbursement is obtained from the building contractor or subscriber, while other circumstances may justify a policy to offer this type of pre-wiring without charge to new homes above a certain price level when it can reasonably be expected that future service development will justify absorbing the pre-wiring cost.

Pre-wiring can no longer be considered merely a convenience to the subscriber who can afford to pay for it. The time has arrived when progressive telephone company management must see that pre-wiring is incorporated in new residential construction to reduce installation labor cost, and to fully exploit service development.

Bell System companies may obtain information on this plan by writing H. W. Sherwin, 23500 Northwestern Highway, Southfield, Mich.

Independent telephone companies may obtain Bulletin PW-100 from Orbit Industries, Inc. of Vienna, Va. This bulletin provides a list of materials available and a detailed practice for the pre-wiring plans described.

THE

TRAFFIC PAGE

By WINNIE BURNETT

THE REACTION to Mark-Sense toll ticketing varies from sheer delight to sheer dislike, according to the person and the department. Some like it hot, some like it cold, few like it to the same degree, or so I'm told. Phooey—that is about as poor a bit of rhyming as I can imagine, but it does seem to express the feeling toward mark-sensing.

Popular or unpopular, industry progress indicates mechanization of billing procedures and ticketing techniques. A step toward this is the manual mark-sensing of toll tickets by operators. And so the success of such a program begins with the traffic operation. The degree of accuracy and speed depends on the adequacy of the training program—both initial and subsequent.

WHILE THE Mark-Sense ticket is larger and heavier (as you know, it is like a card), it requires more careful handling than does the regular paper toll ticket. This is primarily due to the sensitivity of the sorting and processing machines, since incomplete or inaccurate marking may cause the machine to reject the ticket or to "misread" the markings. Also, scuffed corners may cause machine difficulties. And so the warning to mark carefully and handle carefully is warranted. *But* too often the fragile qualities of these tickets are so over-emphasized that the operating forces are scared of them—and scared of the whole Mark-Sense deal.

"Mark-Sense Makes Sense." This is a quote from Mrs. Claire Perkins, a successful M.S. chief operator of the Illinois Bell Telephone Co. I say she is successful advisedly, for she manages two large toll center Mark-Sense offices—Collinsville and Edwardsville, Ill.—and keeps well below the objective figure for rejects. And she seems to enjoy the challenge of the work—not to fear it. I asked her for the secret of her success and she said there is no secret—just positive thinking plus a positive approach. To quote her:

"There has been considerable discussion pro and con about Mark-Sense ticketing. It is not a simple conversion nor is it one to be feared. If management people are apprehensive about a Mark-Sense introduction, we cannot expect the operators to be positive in their thinking.

"THERE ARE a few things we can do prior to the Mark-Sense conversion to make it easier for everyone:

"Train the operators to use notify tabs and also to convert towns to numbers. For example:

> "Establish a series of drills to be given at the switchboard during slow periods of traffic associating cities with their NPA codes. Chicago is no longer 'Cgo' but '312'; St. Louis is '314'; New York City is '212'; etc. Use the frequently-called list in your office. Check with the rate and route guide for codes and then set up your drills.

"The more memory codes the operator knows, the easier it will be to mark the ticket as the customer talks. (Being able to mark the ticket as the customer talks is the secret of an accurately-marked ticket.)

"FOR YEARS we have talked about overlap recording and operators have been using this system. Now we must mark our ticket left to right as the customer places his call. No call is to be advanced until it is completely mark-sensed up to the *calling number.*

"During the training, a great deal of emphasis should be placed on marking while accepting the customer's order. All drills should be carefully checked by the instructress to see that the operator is marking correctly. It may appear that the operator is acquiring speed, but one must check to see that the correct "bubbles" have been marked during the drill. This is very important. Speed should never be stressed at the expense of accuracy.

"The habit of marking above or below the correct "bubble" is one the operator will carry over into commercial operating and, if not detected during training, will lead to unbillable tickets later.

"THERE CANNOT be too much emphasis placed on the amount of supervision and follow up done during training and immediately after training. During conversion, all tickets should be checked. All errors should be returned to the operators for correction. It is of far greater value if the operator sees her errors than if she is merely told about them. This also applies to tickets returned from the accounting center for correction.

"Work closely with the commercial department. On any tickets that the customer refuses to pay the charge or on any unidentified toll, have the operator who marked the ticket check it out.

"Watch for trends. As these trends develop, begin to take corrective measures immediately."

THIS DOESN'T sound too complicated. Some people are inclined to complicate things by a fearful approach. Any progressive step, if faced with dread, will present an almost insoluble problem.

If your office is already using Mark-Sense tickets, try this positive approach to iron out bothersome operating discrepancies.

If you are planning to go into Mark-Sense, plan well and keep in mind the many ways to make your conversion to mark-sensing easier—and welcomed.

(Continued on page 59)

Seattle's World's Fair monorail makes lazy "s" as it courses a trail from downtown to fairgrounds. In background is Mount Rainier, some 13,811 feet higher than the 600-foot Space Needle at right. INSET: Monorail train glides along its route.

CENTURY 21

Tomorrow Arrives Today

By BEN BOWLING
Vice President & General Manager
Washington-Idaho Area
Pacific Northwest Bell Telephone Co.

SEATTLE, Wash., comes of age with Century 21, a world's fair dedicated to the world of tomorrow. The fair is scheduled to begin Apr. 21 and continue through Oct. 21, 1962. It will encompass a world of the future never glimpsed by most and never imagined by many.

In 95 seconds, the fair visitor will be transported from downtown Seattle to the fair grounds via Monorail. He will see the 600-foot Space Needle, the huge Century 21 Coliseum, the imposing Opera House, the funladen Gayway and a host of other attractions at the 80 million dollar extravaganza.

The fair's futuristic theme of Man-in-the-Space-Age is a natural for the Bell System, whose exhibit building occupies a prime location in the "World of Industry" area. The structure is designed to accommodate a main amphitheater more than two stories high. Over-all dimensions of the building are 60 by 230 feet. The cost of the exhibit is about three-quarters of a million dollars and is being shared by Pacific Northwest Bell, AT&T, Long Lines and Western Electric.

Panels of native red cedar and white masonry set off elevated wings at each end of the building. When night lights are clicked on, the wings will appear to float in space.

What's inside this avant-garde edifice? The future is inside—the future of communications, both in and out of this world. Once through the doors, the visitor is guided into the "center ring" of the exhibit, the amphitheater. He is greeted by an official hostess, one of 47 Pacific Northwest Bell young women chosen for the task of guiding fairgoers through the exhibit hall.

The house lights are dimmed. Overhead hangs a curtain of shimmering stars, glowing planets and twinkling galaxies. The visitor sees a large globe, the outlines of the Western Hemisphere clearly visible. The view is the same one seen by an astronaut orbiting the earth at 6,000 miles out.

The story of communication begins. Six large floating screens above and in back of the globe show in quick, nearly simultaneous bursts of film, man's struggle to send messages and his ultimate triumph over distance with the harnessing of electricity. The drama moves along over thousands of years of history, from the earliest means of communication to the complex world-wide systems of the present.

The climax of the five-minute trip through time is a demonstration of

BEN BOWLING

Pacific Northwest Bell and cooperating Bell System companies have built this imposing structure for Century 21.

how space satellites will extend man's ability to call anywhere in the world and perhaps even beyond. Satellites, the explanation says, are only a projection of the microwave principle on earth. Through these man-made moons, "live" television from all over the world can be brought to the family TV set.

The lights are turned back on. The visitor moves away from the heart of the amphitheater. Now, in the east wing, he finds himself in the Technology Section. A series of exhibits depicts research and development, the twin foundations of a progressive telephone company.

Four plateaus are visible in this part of the building. On the first level is a demonstration of Pulse Code Modulation, which makes greater use of present wire facilities. This plateau also offers a display on how telephone equipment sends calls rushing to their destinations in split seconds.

The second level brings the visitor to a world which he probably already partially understands, Direct Distance Dialing. The fair-goer will call across the nation by dialing weather bureaus in any of 10 cities. Included on this plateau is an Electronic Central Office display.

The third level explains "transmission", and radical new methods of projecting voice, data and television using wave guides, satellites and optical masers.

In Western Electric's part of this exhibit, the development of the transistor is revealed. The manufacturing process of the semiconductor will be unveiled and the Bell Solar Battery, which can be harnessed to the sun to power satellites, is there, too.

The fourth and final level explores the importance of basic science in the

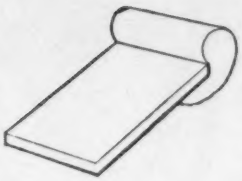
(Continued on page 55)

Ron May (left), New York display-design firm representative, and Bill Bakken, Pacific Northwest Bell exhibit manager, unwrap a Direct Distance Dialing display.— Photos by Harvey Davis, Seattle "Post-Intelligencer."

Pacific Northwest Bell World's Fair hostess Sheila Norvell takes a good look at a Pulse Code Modulation exhibit. Sheila is wearing the official Bell System hostess uniform.

Sheila Norvell, Pacific Northwest Bell's World's Fair hostess, examines wooden curls of a simulated fire orb. Display shows how Bell System solar battery takes sun's energy and puts it to work for man's benefit.

The Plant Man's NOTEBOOK



By RAY BLAIN, Technical Editorial Director

THE Bell Laboratories *Record* reports that a new era in telephone communications will soon begin with the installation of the first full-scale commercial electronic central office (ECO) in Succasunna, N. J. The new system will serve all of the community's 4300 telephone subscribers.

The construction of a new building to house the ECO is scheduled to begin next spring. Installation and testing of the highly complex equipment should be completed by mid-1965. Although similar in concept to the system on trial in Morris, Ill., the Succasunna installation is designed for commercial production to meet the needs of Bell System's customers. The exact features to be offered on this new system initially are still to be determined. However, among the unique telephone services being considered for the new ECO are:

Two-digit dialing for frequently-called numbers.

Automatic routing of incoming calls to another telephone when the originally-called line is busy.

Dialing a code to forward incoming calls to another telephone when the customer is away from home.

Dialing a third party into a telephone conversation that is in progress.

These and other features can be programmed into the ECO's memory which is capable of storing millions of bits of information to be used on instantaneous command.

The ECO makes wide use of transistors and other solid state devices which operate approximately 1000 times faster than conventional switching apparatus. It is actually a highly specialized electronic data processor. Its high speed and special equipment make possible a variety of new services which greatly increase the value and flexibility of each customer's telephone.

•

An increasing number of volunteer fire departments in Michigan are solving their communication problems by the use of General Telephone Co.'s fire reporting system.

The Northern Division of the reporting system, with 13 communities subscribing to the service, has been spearheading a drive to up-date fire reporting systems in dial exchanges. The need for this special service was triggered by the conversion of small communities to dial operation. Before dial, most communities with volunteer fire departments relied on the telephone operator to spread the fire alarm. With operators no longer available to perform this task, the volunteer departments have turned to more mechanized means for fire reporting.

Out of several plans made available by General Telephone, two have proved most popular. Both of these utilize the regular telephone network. The preferred plan, however, requires that a person be on duty to receive the fire calls. When the report of a fire is received, the duty person initiates the fire alarm by lifting the handset from his special conference telephone. This action places a continuous ring on all of the firemen's lines that are idle, and a warning tone on all firemen's lines that are in use. As soon as each fireman answers the telephone, he is connected to a conference call for instructions from the person on duty.

The second plan, favored by some because of its lower cost, eliminates the necessity of having a person continously on duty. When the fire alarm number is dialed, the fire alarm automatically rings all of the firemen's regular telephones. Fire directions are given by the person initiating the call. The information is relayed to the other firemen as they answer and enter the conference. The unanswered telephones will continue ringing as long as at least one person remains connected to the conference.

•

The advantages of car seat belts have been brought home to Pacific Telephone & Telegraph Co. employes in northern California. In two separate accidents, operators were thrown from cars in which they were passengers. The first victim received severe facial injuries, but in the second accident, injuries proved fatal. In both cases, it was later determined that seat belts would have helped to prevent the serious or fatal injuries.

As a result of these accidents, and the knowledge that they could have been avoided, or at least reduced in severity, the safety committee embarked on a seat belt campaign. The first action was to investigate the possibility of offering seat belts at a price that would prove attractive to employes.

Then, safety posters began to appear mysteriously. First, they appeared on all clocks, advising employes that "now is the time for seat belts". Then, they began to show up at the front door, on the elevator, over the telephones, on every mirror, in the cafeteria and rest rooms, until gradually everyone was aware of the seat belt campaign, from the minute he checked the time as he entered the door until he rode the elevators down at night. Seat belt sales soared, and the safety committee hopes that all employes will soon have their cars equipped.

•

Michigan State University is the first school in the nation to get Centrex, the new PBX system. Cut into service last August by Michigan Bell Telephone Co., it is the largest in the state, and the first Centrex ever installed in a college or university in the nation. The first such system in the Michigan Bell territory, however, was installed for the Dow Chemical Co.

The new MSU system, designed eventually to accommodate 10,000 on-campus telephones, now serves some 2,500 telephones in the school's administrative buildings and approximately 5,000 in student dormitories and married students' quarters.

PRIOR TO the new installation, the telephone equipment serving the

(Continued on page 30)

all you need is a cable, a clamp and a pole

Anaconda Figure-8 Telephone Cable eliminates separate messenger and spinning

You save time at every pole with Anaconda Figure-8 cable, because both messenger and cable are combined under one common Figure-8-shaped jacket that is easily installed into tight-gripping cable clamps. There is no field spinning, no separate messenger reel.

And when you dead end Figure-8 at a pole, there is no end curl or twisting because Anaconda's exclusive "dead" strand is pre-formed to stay put. In fact, "dead" strand eliminates twisting altogether even when you lay cable by the road.

Figure-8 cable is long-lasting. It resists abrasion, scraping, flexing — moisture, heat, and cold. An Anaconda-developed sealing compound prevents moisture migration and corrosion.

Anaconda makes Figure-8 Telephone Cable with standard color-coded Alpeth or Cupeth constructions, with longitudinal corrugated shields on all sizes for flexibility. Average mutual capacitance is 0.083 mf/mile.

Find out more about Anaconda Figure-8 Telephone Cable. Contact your local Anaconda representative or write to Anaconda Wire and Cable Company, 25 Broadway, New York 4, New York, Department EFL-1-T. 61331

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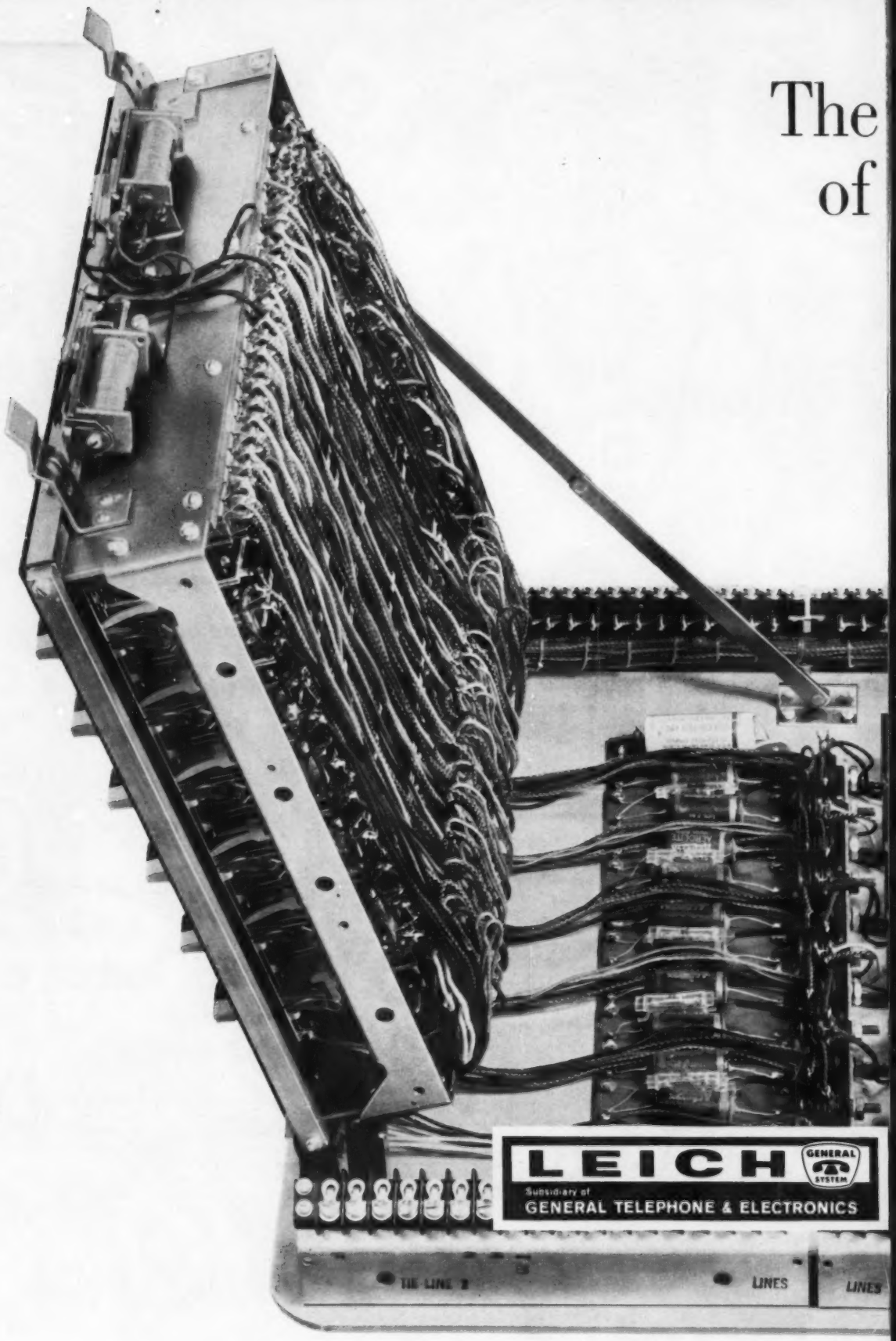
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ANATOMY
the LEICH CORDLESS PBX

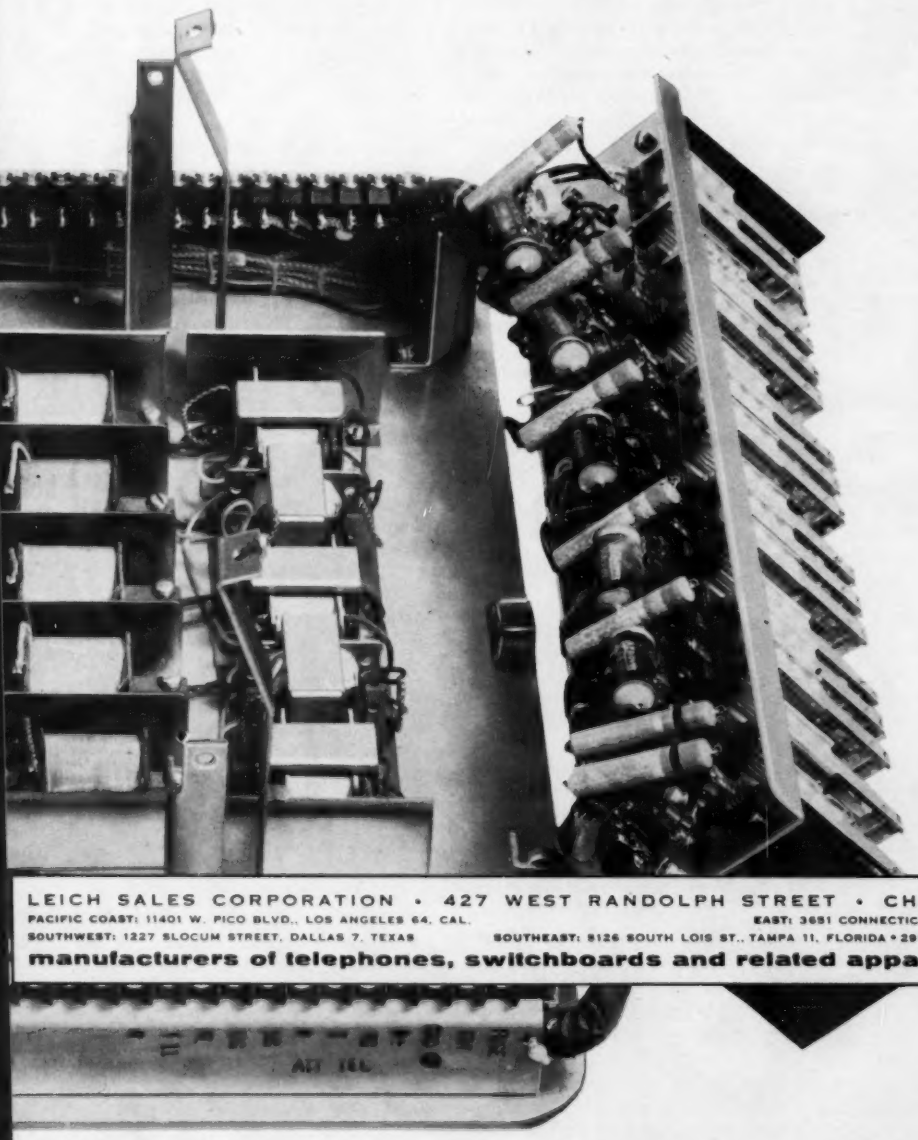
Here are the nerves and muscles laid bare. With a built-in multiple on line keys and trunk keys, Leich's Cordless PBX eliminates many sources of trouble. Add to this, precision assembly and high quality components, and you have a superior PBX – one that will serve *you* and *your customers* as a faithful servant for years.

CAPACITIES: 12, 16, or 20 lines with 5 connecting circuits, and 5 central office trunks. Stock delivery on 20 and 12 line models.

STANDARD FEATURES: Prompt recall, channel busy lamps, re-ring features, through or attendant dialing, through supervision, night service, trunk holding and conference calls.

OPTIONAL EQUIPMENT: Hand generator, tie trunks, extra line relays and key telephone are available.

Ask your Leich representative for complete details.



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manufacturers of telephones, switchboards and related apparatus since 1907

school's administrative functions consisted of a five-position switchboard which handled 2,650 telephones. Sixteen other one-position boards, located throughout the campus, served an additional 650 telephones for administrative use. All incoming calls were routed through the main switchboard. Operator assistance was required on calls from or to the telephones that were served by the one-position boards.

The dormitories were served by 37 one-position switchboards and 760 telephones. Under this arrangement, as many as 75 students were served in the dormitories by just two telephones. When a call was received for a student, the dormitory operator would buzz him on the signaling system to advise him that he was wanted on the telephone. He then dashed frantically through the halls in an attempt to locate a vacant dormitory telephone on which to take his call. Often, parents, instructors and advisers were unable to contact a student.

This, then, was the situation when Centrex arrived in time for the start of the school year last fall. This was after months of planning and preparation by Michigan Bell's plant, traffic, marketing, engineering and commercial departments.

IN ADDITION to the remarkable improvements in service that Centrex provides, the installation also offered important bonuses.

One was an anticipated annual saving in the cost of telephone service to the university.

Another bonus was the installation of miles of additional coaxial cable for use in tying together principal campus locations for closed-circuit television. The TV cable was buried in the same trench by telephone company plant men while installing the new cable required by Centrex.

There have been some noticeable changes on campus since Centrex arrived. Gone are the evening queues at dormitory telephone booths, and the frantic dash by students through the halls to locate a vacant telephone.

Gone, also, are the delays and inconveniences in completing calls to, from, and within the school.

Needless to state, Centrex has proved immensely popular with the faculty, the student body and their parents.

"Cross Talk"

A contented person is defined as one who has all the things his neighbor has.

•

The world's greatest cause of trouble today is that stupid people are so sure about things, and the intelligent ones are so full of doubt.

Plant Man's QUIZ

By RAY BLAIN, Technical Editorial Director

Q. We recently purchased a small telephone exchange of approximately 400 stations. The rural subscribers are all on service lines which we plan to take over. We also plan to convert to dial within a year. My problem is that these farmer-owned switcher lines insist that we make use of buried cable throughout. Preliminary cost studies indicate that this type construction will cost about double that of open wire.

In our opinion, the rates would necessarily be higher than the subscribers would be willing to pay to assure us a profit with buried construction. I am in need of some information, from a service and economic standpoint, on the practicability of buried plant to serve rural areas.

A. This is a problem that requires careful consideration and one that is most difficult to answer without a complete engineering study giving careful consideration to all the variables involved. There is no doubt that buried plant has numerous advantages in areas where its cost is not prohibitive. This does not mean, however, that open wire plant is obsolete. There are many areas where open wire lines will be constructed and will give good service for many years into the future.

The REA requirements for buried plant state that: REA will consider for approval the construction of either entire systems, or parts of a system, on a buried plant basis, only after complete and thorough engineering study and economic analysis have been prepared. This engineering study and the economic analysis must show:

(1) That conditions are favorable for the construction of buried plant.

(2) That state and local highway and road authorities will give permission for the utilization of highway and road rights-of-way for buried plant.

(3) That proper attention has been given to any problems encountered in the area requiring special measures in design such as gopher infestations, high lightning incidence, or high earth resistivity.

(4) That special care and attention have been given to forecasting the market for telephone service in the area, in recognition of the decreased flexibility in buried plant, and the higher costs of reinforcement at a later date.

(5) That the initial cost of the system design, based on buried plant proposed, will be less, or closely comparable to, the initial cost of the most economical system design utilizing other conventional methods of telephone plant construction.

Further, the engineering study and economic analysis included as a part of the area coverage design, setting forth the above, must be accompanied by a specific recommendation of the engineer for construction of the system on the basis of buried plant and a written request from the owner for REA approval of buried plant construction in accordance with the design.

•

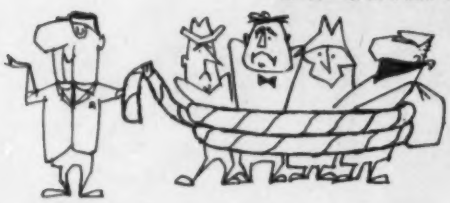
Q. Will you explain the principle of the line concentrator and what advantages may be gained by its use?

A. The line concentrator may be used to reduce the number of cable pairs required to serve an area or neighborhood. This can be accomplished because not everyone will use his telephone at the same time. For example, 50 telephones installed in an area would normally require 50 separate cable pairs to connect them to the central office. With the use of a concentrator, these 50 telephones can be served by about 10 lines to the central office, and everyone will have essentially individual line service. Line concentrator equipment may now be pole-mounted.

Some Guys You Can't Trust

But You Can

Be Smart



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• • • able, clever, intelligent, ingenious, talented, resourceful, inventive, shrewd, sharp, cunning, sagacious, adept, adroit and accomplished.

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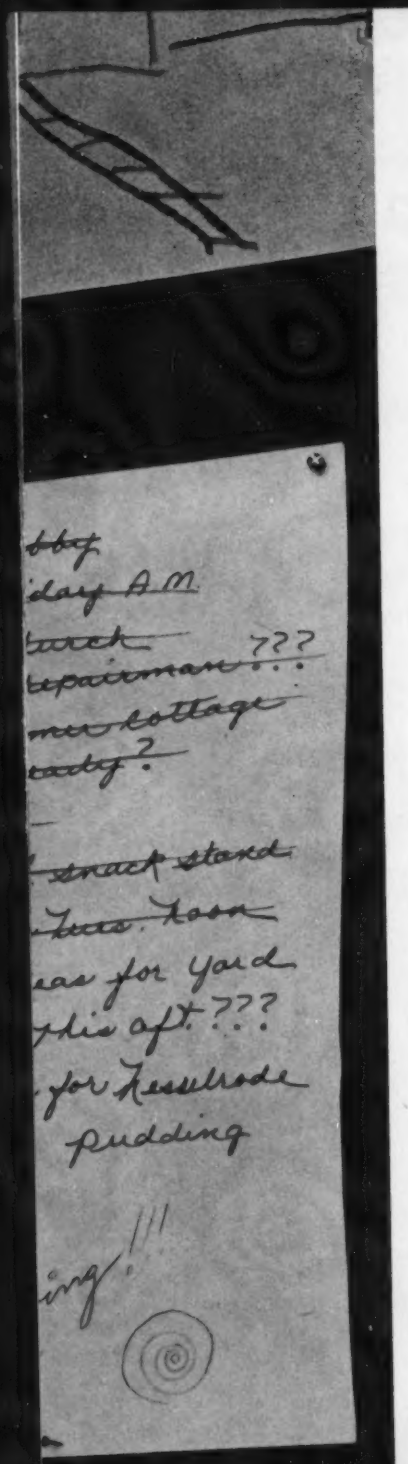
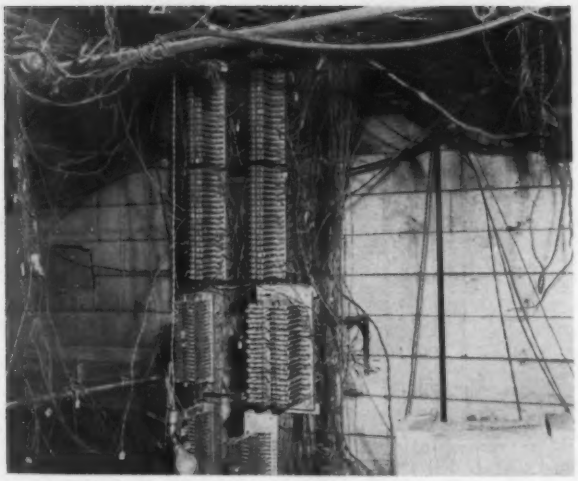


WHY TELL 'EM WHEN YOU CAN SHOW 'EM

This picture shows a smart housewife saving herself a lot of time by relying on her phone. When it appears in Bell System national advertising, it could inspire a good bit of extra phoning by the 33 million readers who'll have a chance to see it.

Continuing advertising such as this promotes telephone usage that benefits all of America's telephone companies.

BELL TELEPHONE SYSTEM



The MDF in the old Roslyn, Wash. exchange prior to cut-over.

THE EVOLUTION OF A TELEPHONE SYSTEM

By Ray Blain

BACK ABOUT THE turn of the century, the citizens of Roslyn, Wash. convinced Anthony Stoves Sr. that the town needed a telephone system.

The initial investment in the new means of communication was made by a young man whose name no one remembers anymore. The plan was to rent space in the Stoves Drugs building for housing the switchboard. This building, which was constructed in 1892, served as the home of the Roslyn Telephone System until it was moved into a new building during December 1961.

The new system had been in operation only a very short time in 1900 when the original entrepreneur received an attractive offer for his services in another locality. He induced Mr. Stoves to reimburse him for the money he had invested in the system and then departed for greener pastures.

This left the new owner with a business with which he was entirely unfamiliar. He was not easily dismayed, however, and with the assistance of Jim Forbush, and the occasional help of a neighboring company's linemen, he managed to increase the system to nearly 200 subscribers by the middle 20's. The company was issued a franchise in 1917.

In 1927, Larry Davis, who married Mr. Stoves' daughter, joined the company to assist his father-in-law with the operation of the system. Mr. Stoves died in 1932, and Mr. and Mrs. Davis assumed the roles of managers and operators. They held these positions until the system was sold to Mr. and Mrs. Harold Weis in the spring of 1961. Mr. Weis is also president of the Prescott Telephone Co.

One cannot but wonder how this antiquated system could remain in service for a period of nearly 62 years and function in this modern age. Perhaps it can best be explained by remembering that the system, soon after its inception, was dumped into the lap of a man who wasn't particularly interested in the telephone business. Also, Roslyn is a coal mining community. With a declining coal market, the economy of the area also declined, and the telephone company continued to just "get by".

When Larry Davis became manager of the company in 1927, he took a greater interest than Mr. Stoves. Even so, the declining economy proved to be a detriment to improvement.

(Continued on page 38)

LEFT PHOTO: Old Roslyn exchange building and cable entrance. RIGHT PHOTO: The Prescott Telephone Co.'s new exchange building at Roslyn.

new

. . . Service for subscribers!

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MOTOROLA CAR TELEPHONE

A dynamic new extension of your subscriber service—profitable, too! With Motorola Car Telephone on the job, you provide the latest service to business and professional men-on-the-go. Here's how it works:

AT THE EXCHANGE—The Motorola system is *fully automatic* in operation . . . connects directly to your switching equipment with no modification required for radio.

IN THE CAR—Your subscriber commands the finest radiotelephone system, specifically engineered for this service. With exclusive Motorola push-button number selection, his call is initiated quickly, conveniently, accurately.

There must be a reason why Motorola Car Telephone is the number one choice of Independent Telephone Companies—and there is . . . experience! Over two decades of experience in FM 2-way radio, combined with the proven Car Telephone System, assures the quality of messages to and from the car. Let your Motorola representative show you how to expand your telephone service—keep your costs low, your profits high—with Motorola Car Telephone. For full facts write Dept. ATP212.

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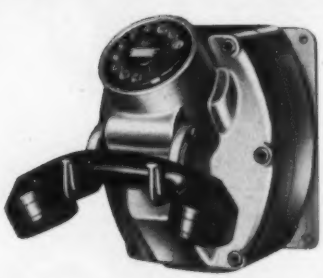
Different subscribers need different services

AE provides telephone service for every need

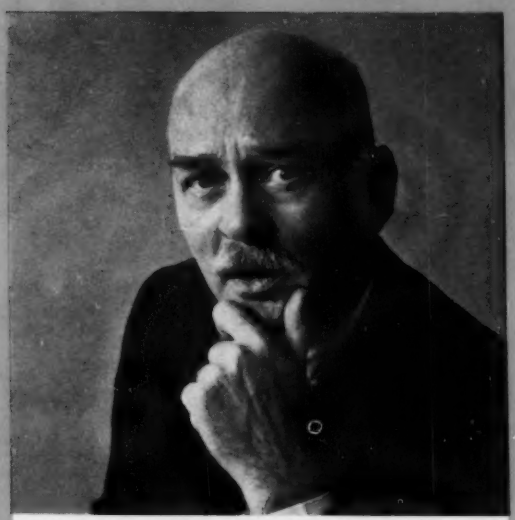
Each customer in your area has specific telephone needs. To meet these needs, you must provide many types of service—standard and special. Why? Because it pays off...in increased revenue and better service to your community! Your customers will pay extra for better service and greater convenience.

Are there any new customers in your area? Any old ones with new telephone needs? If so, show them the AE telephone service best suited to their particular needs. For details on our complete line of station equipment, contact your AE representative. He can also furnish you with valuable sales aids to help you promote these services. To contact him, just write to Automatic Electric Sales Corporation, Northlake, Illinois.



HAZARDOUS LOCATION PHONE—For use in gas plants, oil refineries, laboratories—any hazardous location. Sealed housing contains explosions, encloses all components that might produce sparks.

MESSAGE-WAITING SERVICE—An added convenience for hotel or motel guests. Phone equipped with flashing light signals guest that a message has been taken in his absence. Choice of colors.



CALL COMMANDER® PHONE—Gives the businessman pushbutton access to important aides. Key system service for up to 17 outside, PBX or private lines. Intercom and conference features, too. Green or Beige.

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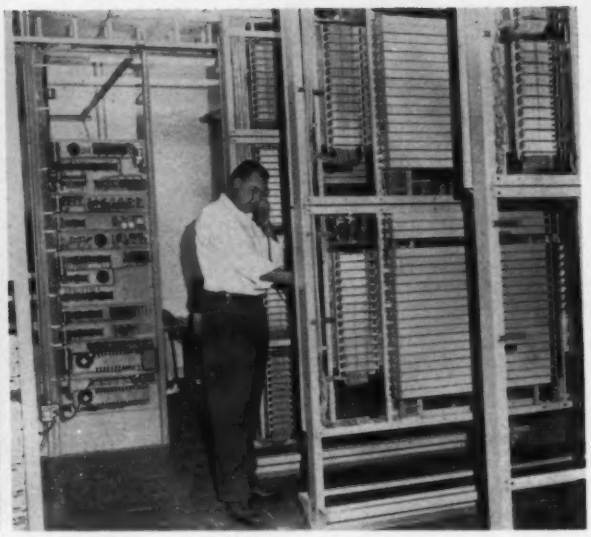
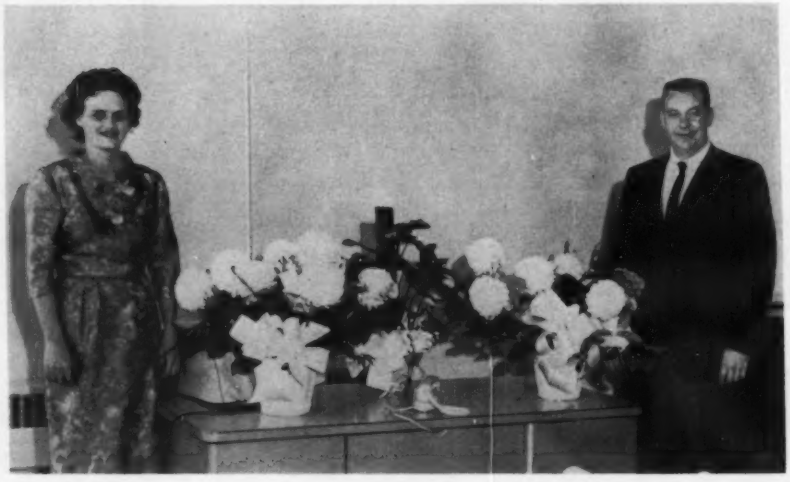




LEFT PHOTO (above): The old manual magneto switchboard used until the time the new dial system was cut into service in Roslyn, Wash. RIGHT PHOTO: Harold Weis with new XY dial system at Roslyn. LOWER RIGHT: Mr. and Mrs. Weis in business office of new exchange.

Despite these handicaps, however, an attempt was made in 1947 to modernize the system. At that time, a dial system was purchased but for predominantly financial reasons, it was never installed. When Mr. Weis purchased the system in 1961, the dial equipment had not been unpacked.

When Harold Weis purchased the Roslyn system, he realized that he had purchased little more than the right to rebuild. The outside plant was in the same run-down condition as the building and the central office equipment. The accompanying pictures tell the story. A flood at one time caused an accumulation of over a foot of water in the exchange. Added to these difficulties, the pot-bellied heating system would "blow up" several times each year covering the equipment with soot and dirt.

The rehabilitation of the Roslyn system consisted of the construction of a new building, the installation of dial switching equipment, and the complete rehabilitation of the outside plant.

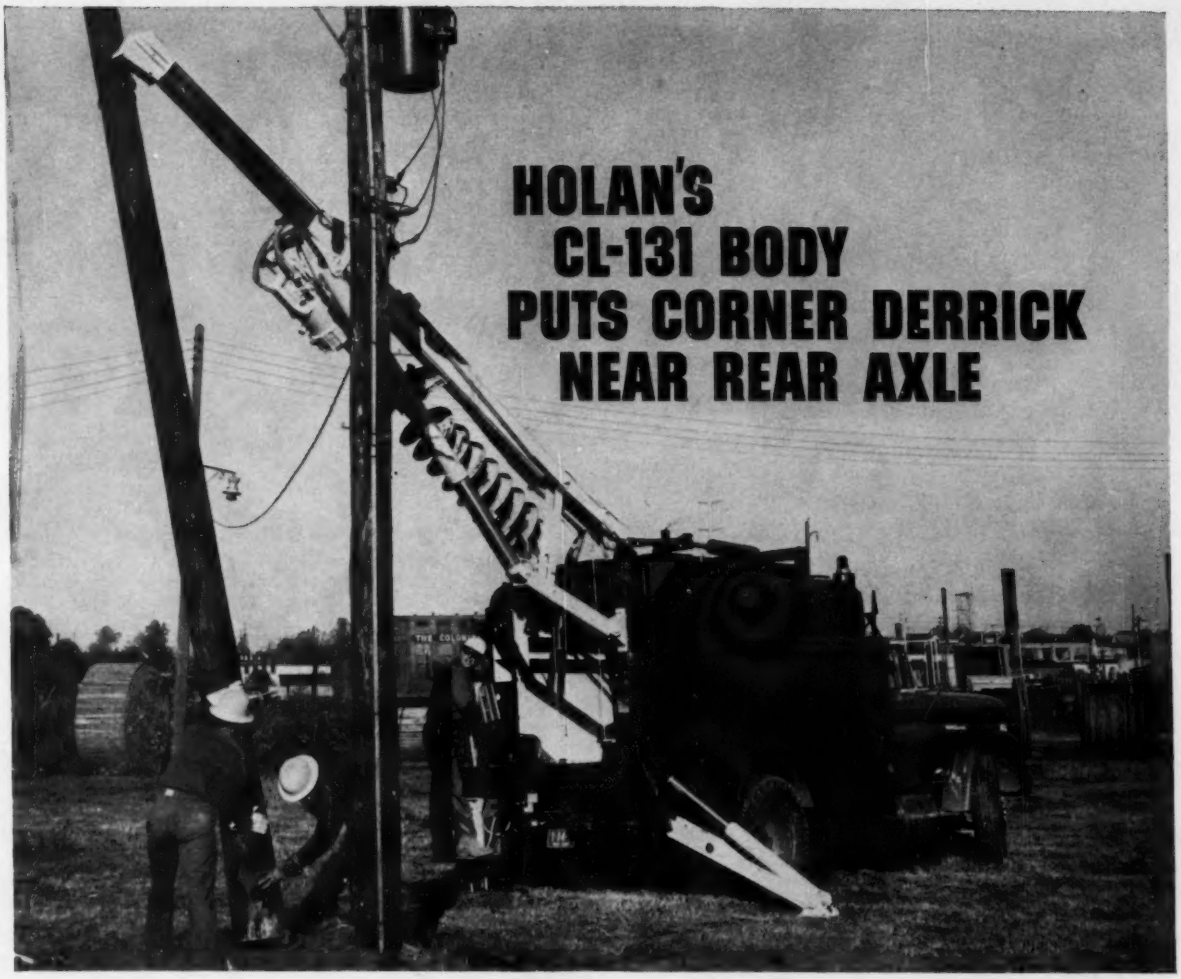
The 750 terminal XY dial exchange provides service to several nearby communities such as Cle Elum and Roland. It is generally agreed that, prior to conversion, Roslyn's low rates hardly made the service a bargain, and that the cut-over to the new system came not a day too soon. Some of the territory is being served for the first time, and other areas have had service restored after a period of outage because of a general deterioration of the plant. All residents of the area are happy with the new service. Perhaps, however, the happiest people are Mr. and Mrs. Weis who can now look back over the past two years as a bad dream.

Aim, Not End

"If you have built castles in the air, your work need not be lost; that is where they should be. Now put the foundations under them."—HENRY THOREAU.

Liberty With Discretion

"Free will is not the liberty to do whatever one likes, but the power of doing whatever one sees ought to be done, even in the very face of otherwise overwhelming impulse. There lies freedom, indeed."—G. MACDONALD.



HOLAN'S CL-131 BODY PUTS CORNER DERRICK NEAR REAR AXLE

New Unit Mounts on 84" Chassis, Yet Stable Enough for Pole "Walking"

Holan's new CL-131 Body/7500 Corner Derrick Unit is a husky little heavyweight.

Short and compact, the body mounts on an 84" CA chassis — and the centerline of derrick rotation is less than 44" from the centerline of the rear axle. By "bobbing" off the rear, the center of gravity automatically shifts forward, making it possible to handle heavy derrick work with or without use of the hydraulic stabilizer jack.

In fact, long and hefty poles can be "walked" to position with the unit, set and aligned without use of pike poles.

And the compartmentation is ideal for light line construction or maintenance. On the right side, there are shelves with adjustable partitions, compartments for ropes and climber belts, a water cask, a thru box for long tools, a crosscut saw holder, and a rubber goods box in the superstructure that opens to the inside of the body.

On the left side, there is a horizontal compartment with drop doors and full-length shelf partitioned for miscellaneous equipment. And there's a left-hand lower box for heavy tools.

Here is a compact workhorse of a unit . . . one that will save time, maneuver easily and do a multitude of line construction and maintenance tasks. Call your Holan Field Representative . . . or write us today . . . for complete information.

"Walking" a pole is an easy task for Holan's CL-131/7500 Corner Derrick Unit which mounts on an 84" CA chassis.

Holan Corporation, 4100 West 150th Street, Cleveland 35, Ohio

Holan

Subsidiary of THE OHIO BRASS COMPANY

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Courts and Commissions

Control of Lee Telephone Co. Issue at Court

A legal contest over the control of the Lee Telephone Co. of Martinsville, Va., has developed as a result of a petition filed on Feb. 9 in Henry County Circuit Court at Martinsville, involving the sale of 168,925 shares, or approximately 72 per cent, of the Lee Telephone Co. stock.

The issue centers around the B. L. Fisher Estate and a controversy between the executors and beneficiaries of the estate over disposition of the stock.

On Feb. 27, Telephones, Inc., of Chicago announced that it had, on Feb. 13 acquired, at a cost of 6 million dollars, the entire beneficial interest in the charitable trust, established under the will of the late B. L. Fisher (founder of the Lee Telephone Co.), containing the 168,925 shares of the Lee company's stock. The beneficiaries of the trust are Asbury Theological Seminary of Wilmore, Ky., with a 50 per cent interest; Wheaton College of Wheaton, Ill., and Moody Bible Institute of Chicago, each with a 25 per cent interest.

The executors of the estate want to sell the stock to Western Power & Gas Co. (formerly Central Gas & Electric Co.).

According to the executors, at a meeting on Jan. 27 between the representatives of the schools and the executors, the school representatives requested the executors to sell the Lee Telephone Co. stock at the highest price obtainable. The executors, it is reported, immediately began investigating the possibilities of sale of the stock and, for that reason, contacted several prospective buyers.

According to the executors, on Feb. 1 they received an offer in writing from Telephones, Inc., to purchase the Lee Telephone stock at the price of $35.50 per share. The offer was to expire after 10 days. The executors state this was the first and only offer made directly to them by Telephones, Inc.

The executors also state that before the 10 days had expired, they entered into a contract selling the Lee Telephone stock to Western Power & Gas Co. for $42.40 per share, which, the executors say, is the highest offer they received and that the sale was made according to the request of the beneficiaries.

The executors state that, upon receiving information that Telephones, Inc., intended to buy, or had purchased, the beneficial interests of the three beneficiary schools, they filed a petition with the Circuit Court of Henry County, asking the court to confirm the sale of the stock to Western Power & Gas Co., and to advise the executors of their proper procedure and duties.

According to the executors, this action was taken because the administration of the B. L. Fisher Estate had never been closed and the proceeds of the sale had never been placed in the Fisher Charitable Trust.

The executors have stated that, under the will of B. L. Fisher, they were directed to sell the Lee Telephone Co. stock at such time, and under such conditions, as they, in their sole discretion, deemed proper and to transfer the funds to the charitable trust, which, in turn, would pay the funds to the beneficiary schools.

Telephones, Inc., was made a party to the above proceeding.

According to a statement by Telephones, Inc., on Feb. 27, the executors of the B. L. Fisher Estate, after receipt of notice that Telephones, Inc., had negotiated agreements directly with the beneficiary schools to purchase their beneficial interests in the charitable trust, "received a bid for the purchase of these shares (Lee Telephone stock) by another telephone company at a higher price than that paid by Telephones, Inc."

Telephones, Inc., claiming it is the sole beneficiary of the trust established by the Fisher will, has announced that it will request the court to dissolve the trust and distribute the 168,925 shares of the Lee Telephone Co. to Telephones, Inc.

Both Western Power & Gas Co. and Telephones, Inc., are reported to have offered to purchase the minority stock of Lee Telephone Co. at the same price they offered for the approximately 72 per cent.

Grant Injunction Against Mo. Company's Reorganized Board

Judge W. M. Dinwiddie of Missouri Circuit Court on Mar. 9 granted a temporary injunction against the board of directors and officers of the Kingdom Telephone Co., Auxvasse, barring any action in the company's affairs by the officers and board until the court orders otherwise. The petition for an injunction had been sought by Richard C. Keown of New Bloomfield, former president and director of the company.

A motion to amend the original petition was granted on Mar. 13, stating that the injunction should not apply to officers and board members in office prior to a Feb. 9 reorganizational meeting of the board. This motion permits the officers and board to carry on routine affairs of the company but blocks any action by the board as it was reorganized on Feb. 9.

Named in Mr. Keown's petition as defendants are Clifford Hamilton, Lloyd Hoover, Marion Aubuchon, Charles Holland, J. L. Pierce, Vance Sitton, Earl Hauser and George Baumgartner.

Mr. Keown had charged that the board reorganized illegally on Feb. 9 nearly a week after the company's annual meeting on Feb. 3 and that on Feb. 9 he was denied a place on the board.

He states that the board instead of reorganizing on Feb. 3 "dispersed

(Continued on page 44)

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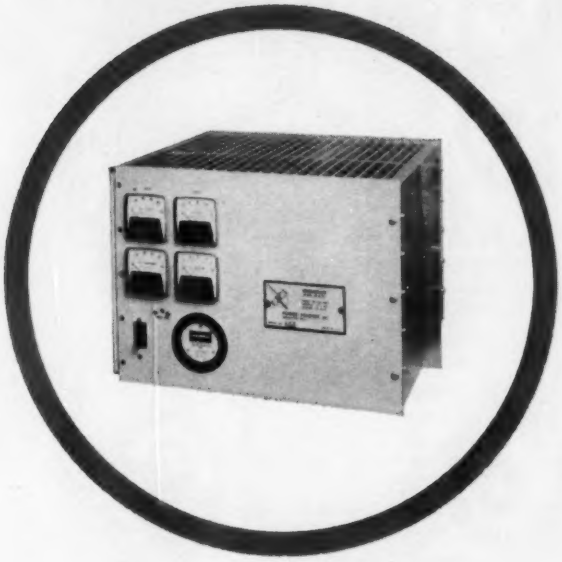

Exclusive SCR Circuit

SOLID STATE SINE WAVE INVERTERS

Power Sources, Inc. introduces a line of solid state sine wave inverters with complete short circuit, open circuit, or overload protection. Containing an exclusive simplified silicon control rectifier circuit, the units, trademarked "SINEVERTER", are presently in use at Mountain States Telephone Company in Riverton and Gillette, Wyoming.

Self-convection cooling permits continuous, full load maximum line service at 40°C ambient temperature. Efficiency is greater than 65%. Line regulation better than 6% for stated input voltage; better than 5% regulation for stated no-load to full-load variation. Frequency is 60 cps ± 1%. Harmonic content of output is less than 5%, all models.

A line of eight standard Transfer Panel and Filter Stations are also available.

The following SINEVERTER units are available for delivery:

MODEL	INPUT VOLTAGE (DC)	OUTPUT VOLTAGE (AC)	OUTPUT POWER (kva)
PS3200	23.5-28.5	117	0.25
PS3201	23.5-28.5	117	0.50
PS3202	44-52	117	1.0
PS3203	44-52	117	0.50
PS3210	105-125	117	1.0
PS3211	105-125	117	0.50

For further information contact Power Sources, Inc., Northwest Industrial Park, Burlington, Massachusetts.

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BURLINGTON, MASSACHUSETTS

INCREASE YOUR "DISTANT-

WITHOUT COSTLY LINE ADDITIONS

...with an ITT Kellogg K-31 Carrier System

You can utilize *existing* lines to expand your rural service. An ITT Kellogg K-31 Carrier System will give you up to eight additional voice channels on a single cable or open-wire pair. Provides reliable service on single or multi-party lines between central office and subscribers. A complete 8-channel system has a frequency range of 14 to 236 KC, with stacked or grouped allocation plans available.

Easy to install, expand, maintain

The K-31 System is exceptionally flexible. Each channel is complete in itself . . . any number of channels may be installed initially, additional channels may be added to meet future needs. Miniaturized sub-assemblies are very compact, easily mounted. Plug-in construction of all units makes installation, test and maintenance simple and easy. A minimum of test equipment is required for alignment and maintenance.

Low power requirement

All terminals, repeaters and power supplies are completely transistorized. Eliminates need for AC power supply at central office terminal. Power requirements are low . . . less than 5 watts per channel, including dropping resistor, at central office . . . from 2.4 to 3.6 watts at subscriber terminals.

High quality transmission

Transmission quality is equal to or better than standards for toll carrier systems. Built-in compandors reduce noise and crosstalk to insure quiet talking circuits. High-quality components and feedback amplifier design assures stable, reliable operation. Automatic channel regulation holds voice frequency drop levels nearly constant over a wide range of carrier line losses.

Signaling compatibility

The K-31 System may be used with most central office dialing equipment which provides selective or semi-selective multi-party ringing. Signaling sub-assemblies are available to provide frequency selective, divided or bridge coded, or superimposed ringing.

Typical 8-channel K-31 Subscriber Terminal Installation

Basic equipment

Basic equipment consists of central office carrier terminal, powered by —24 or —48 VDC battery, and the subscriber carrier terminal with stand-by power supply. K-31 repeaters permit operation over long entrance cables, buried plant or extended lengths of iron wire. One repeater nearly doubles operational mileage; two repeaters triple it, etc.

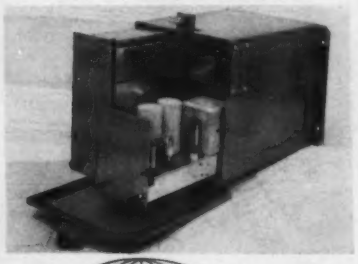
Paystation and private line options

A special signaling option may be equipped, in any of the channels, to provide reversed battery supervision for semi-postpay paystation operation. A similar arrangement is available for lower cost private line use.

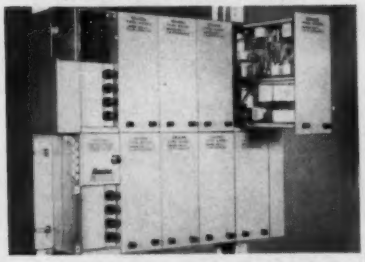
it will pay you to investigate the cost-saving possibilities of the K-31 Carrier System.
Return the coupon today. An ITT Kellogg representative will discuss your needs.
There's no obligation. That's his job

SUBSCRIBER" SERVICE

Semi-Postpay Paystation Terminal



Typical 8-channel K-32 installation



K-32 TRUNK CARRIER SYSTEM

The K-32 provides low-cost open-wire trunk carrier service between two central offices with up to eight separate voice channels on each single-cable or open-wire pair. It is ideally suited for additional trunk service between end-link toll offices or between offices in the same free service area.

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☐ I'll see your representative later

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Company Name_____

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without formal adjournment" and then met illegally on Feb. 9 to reorganize.

Mr. Keown was a member of the board and president of the company until last year, when he was not elected. However, he won re-election to a three-year term on the company's board this year after shareholders at the Feb. 3 annual meeting voted that he was eligible to serve. At the Feb. 9 board meeting he was denied a seat on the board on the grounds that his residence did not meet requirements of the bylaws.

The temporary injunction was sought to prohibit the present board from meeting and transacting business until a hearing can be held on Mr. Keown's request for a permanent injunction. No date has been set for a hearing.

N.Y. Bell and Independents' EAS Service Approved

The New York Public Service Commission on Mar. 17 accepted tariff amendments filed by New York Telephone Co., the Midstate Telephone Co., Inc., Manlius, and Finger Lakes Telephone Corp., Marcellus, under which further extensions will be made to the Syracuse Metroplan on Mar. 25.

When New York Telephone established its Syracuse toll-free calling area last year, further additions were contemplated. Under its latest proposal, the toll-free calling areas of 17 of its exchanges will be further expanded.

Likewise, the Cazenovia exchange of Midstate Telephone Co., will be added to the Metroplan and the toll-free calling areas of that company's exchanges at Manlius, Central Square and Brewerton will be expanded.

At the same time, the toll-free calling areas of Finger Lakes Telephone Corp.'s exchanges at Marcellus and Rose Hill will be enlarged.

Rates now charged to subscribers receiving Syracuse Metroplan service will be made applicable to subscribers of Midstate's Cazenovia exchange. These rates now apply to subscribers of each of the other exchanges affected.

The expansion of the calling areas is in line with plans made by New York Telephone and Midstate a year ago, to broaden them for subscribers in outlying exchanges which are included within the Metroplan.

New York Telephone estimates that the expanded program will result in a $51,400 annual reduction in revenues, due in part, to elimination of toll charges and in part, to reduction or elimination of mileage charges to some affected subscribers.

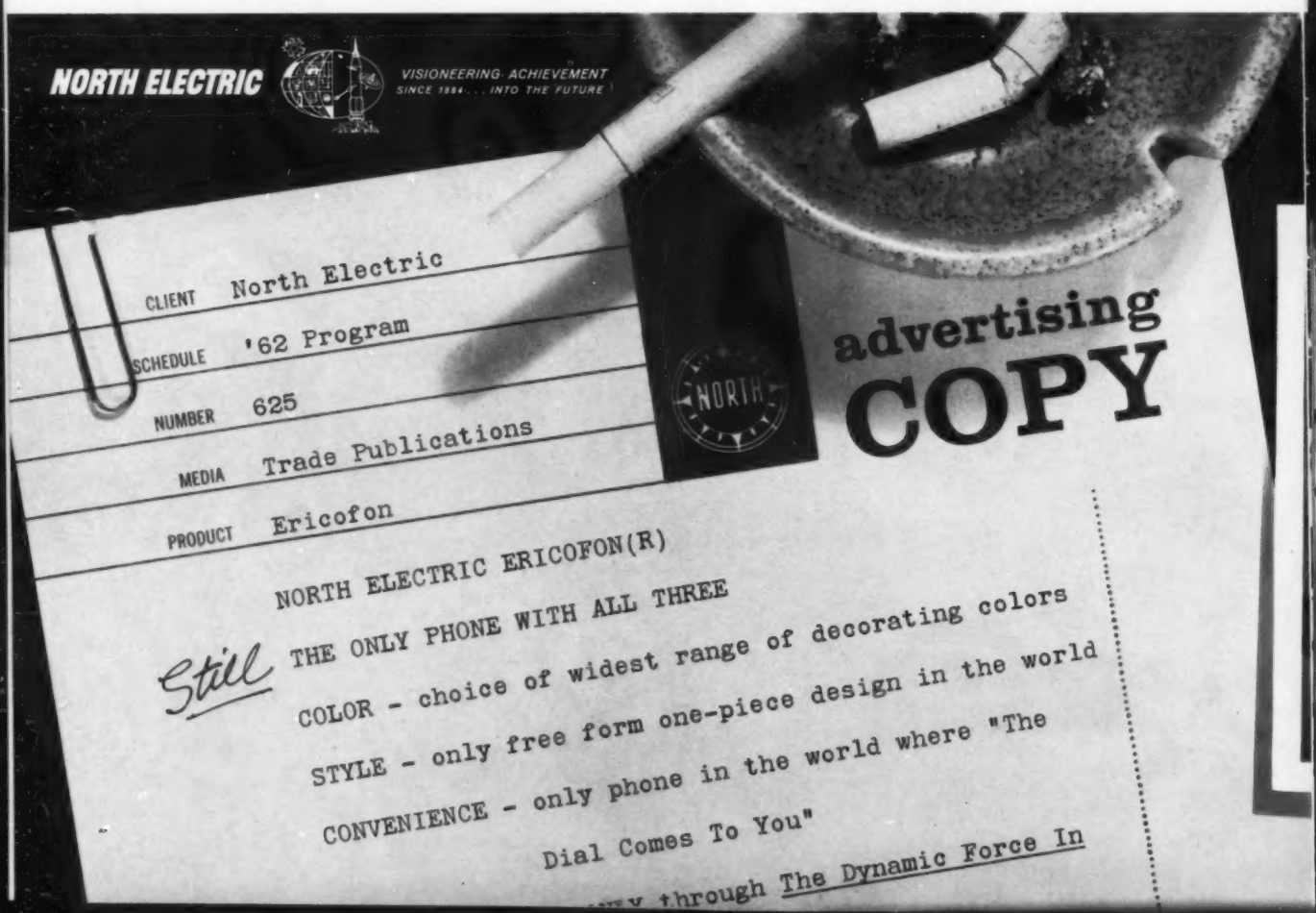
Midstate estimates that the extension of Metroplan service to Cazenovia will reduce its revenues by about $1,350. This results from a toll revenue loss of $32,000, offset by increases of about $17,250 in local monthly charges, plus about $10,500 to be received from New York Telephone Co., with the balance coming from an increase in toll calls outside the Syracuse area.

Finger Lakes Telephone estimates that the expansion of the calling areas of its exchanges involved will have little or no effect on its annual revenues.

Issue Injunction Preventing Sale of Michigan Company

Judge Rex Martin of the Jackson, Mich. Circuit Court on Mar. 6 issued a temporary injunction prohibiting the sale of the Macon Telephone Co. to the General Telephone Co., of Michigan, pending the outcome of a hearing to be held on Mar. 12.

A committee of 100 Macon company stockholders, headed by Elwood Bush and Guy Zeluff, claimed bad faith on the part of management at the annual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meeting held on Feb. 10. Stockholders, at that time, voted 171 to 94 to sell to the General company.

The protesting committee, which seeks to block the sale, stated that the Macon management did not have two-thirds of the holders of outstanding stock approve the action, as required by law. It also claimed that the action had not been approved by the Michigan Public Service Commission for either the Macon company or General Telephone.

Ind. Bell Asks Approval to Purchase Manson Exchange

Indiana Bell Telephone Co. has petitioned the Indiana Public Service Commission for authority to purchase the property of the Manson Telephone Co., Inc., Colfax, and to begin providing telephone service in the Manson exchange area.

Joint petitioner with Indiana Bell was Robert K. Ryan of Frankfort, receiver for the Manson company.

Indiana Bell asked the commission's approval of a plan to:

(1) Enlarge Indiana Bell's neighboring Frankfort exchange to include Manson following renovation of telephone plant in the Manson exchange area.

(2) Convert Manson to dial service, centered in the Frankfort office, at the time the consolidation is completed.

Filing of the petition is the latest in a series of developments dating back to early 1960. At that time, Indiana Bell signed a contract with the Manson company for purchase of its property and assets.

Shortly afterward, suit was filed in Clinton Circuit Court to place the Manson property—its ownership in dispute by two groups—in receivership. The case was venued to Tipton Circuit Court where, in August, 1960, Mr. Ryan was appointed receiver. This decision later was appealed by counsel for the Hendricks Telephone Co., Clayton, on grounds the Tipton court had no authority to appoint a receiver. The Indiana Appellate Court upheld the decision of the Tipton court several months ago.

Sells to Iowa-Illinois

The Iowa-Illinois Telephone Co., New London, Ia., has acquired, according to its executive vice president, A. W. Sanders, the controlling stock of the Nichols (Ia.) Mutual Telephone Co. Stockholders, Mr. Sanders said, were offered the same price for their minority interest, which they accepted. Iowa-Illinois took over the operation on Mar. 5, serving Nichols and surrounding community, or approximately 265 telephone users.

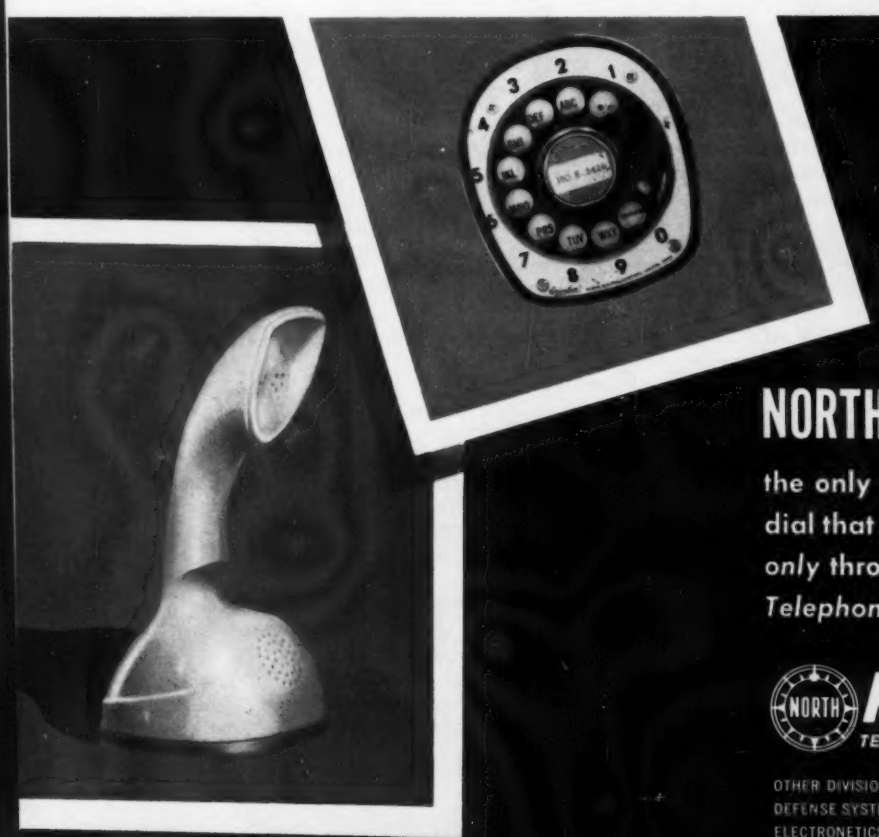
N. C. Company Receives OK To Sell 25-Year Bonds

Monroe Telephone Co. was authorized by the North Carolina Utilities Commission on Mar. 14 to sell one million dollars worth of bonds to finance expansion of its system.

The bonds will be sold to institutional investors, carry an interest rate of 5.5 per cent, and mature in 25 years. The company serves the town of Monroe and much of Union County.

OK Sale, New Exchange in Ga.

The Georgia Public Service Commission recently approved the sale of the Clayton exchange of the Western Carolina Telephone Co., Weaverville, N. C., to Westco Telephone Co., Weaverville, N. C. The Westco company was also given permission to establish a new exchange at Mountain City-Dillard to serve part of the territory previously certificated to the Clayton exchange.



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USITA Board's Resolution Favors Private Ownership of Satellites

THE BOARD of Directors of the United States Independent Telphone Association, at their spring meeting held in Las Vegas, Nev., recognized the importance of private enterprise operation of the satellite communication system when it adopted a resolution putting the USITA on record as favoring the establishment of a space communications satellite system to be owned and operated by the nation's communications common carriers.

The resolution recited that USITA "dedicates itself to efforts in the free enterprise system to bring the benefits of space communications to users at just and reasonable rates." The full text of the resolution follows:

"WHEREAS, The free enterprise system in this country has nurtured individual ingenuity and initiative and thereby immeasurably aided the progress of mankind throughout the world; and

"WHEREAS, The business community of the United States under the free enterprise system has been able to produce and distribute to the people of the United States services and goods of a quality and quantity unparalleled in other parts of the world; and

"WHEREAS, The telephone industry of the United States, both its operating companies and manufacturers and suppliers, has long demonstrated the soundness of the free enterprise philosophy by making available to the general public a scientifically advanced, geographically extensive and suitably diversified communications system of extraordinary capacity, with the largest subscriber saturation of any nation in the world; and

"WHEREAS, It is the expressed policy of the government of the United States that activities in space should be devoted to peaceful purposes for the benefit of all mankind and that the early establishment of a space communication satellite system open to public use would be a significant means of implementing this policy; and

"WHEREAS, The use of the private communications system of the Nation in times of emergency for the national defense and welfare through facilities developed and owned by private enterprise, but adapted for emergency national use through cooperation with interested Government agencies, has proven highly successful; and

"WHEREAS, The President of the United States on July 24, 1961, announced a national policy favoring the private ownership of a space communications satellite system; now, therefore, be it

"RESOLVED, That the United States Independent Telephone Association fully supports the policy of development of a commercial space communications satellite system by private business under the successful and inspiring philosophy of the free enterprise system; and be it

"FURTHER RESOLVED, That this association believes the past history, present operations and known future plans and developments of the Nation's communications common carrier industry demonstrate that the expressed policy of this Nation regarding peaceful uses of space can best be implemented through the establishment of a space communications satellite system to be owned and operated by the Nation's communications common carriers; and be it

"FURTHER RESOLVED, That the United States Independent Telephone Association hereby dedicates itself to efforts in the free enterprise system to bring the benefits of space communications to communication users at just and reasonable rates and with due regard for the interests of the general public, the national welfare and investors; and be it

"FURTHER RESOLVED, That the responsible officials of the federal government be apprised of these resolutions and that they be earnestly requested to consider them."

Oregon Association Holds Plant Training Forum

Seventy-seven men, representing telephone company plant personnel and representatives of manufacturers and associated industries, attended a two day plant training forum at Ocean Lake, Ore. on Feb. 15 and 16. The forum, sponsored each year by the Oregon Independent Telephone Association, draws representatives from about 25 Oregon Independents and is aimed at the engineer and the man in the field.

This year's program was devoted to a variety of subjects. The lead-off item was "DDD plant services" presented by Pacific Northwest Bell Telephone Co. and covered all phases of area wide information centers, Direct Distance Dialing (DDD), service bureaus, and office toll failures, design compatibility and other problems relating to DDD.

The second program by the Oregon Insurance Rating Bureau and the State Fire Marshall's Office, was on fire prevention and fighting and the economies that can be realized by proper buildings. Stressed was proper insurance and a planned fire fighting method (in conjuction with the local fire department) as well as adequate equipment. One possible solution presented to the hazard of fire was a fully automatic system whereby heat release devices would fill the equipment rooms with CO_2 in case of a fire.

In the Feb. 15 afternoon session, Sam Maerz on the staff of the Oregon Public Utilities Commissioner emphasized that more thought must be given to consolidation through common service organizations which could provide some needed economies in operation.

Winding up on Feb. 15 the local REA field representative Earl Sisk, spoke briefly on the expected advantages of insured poles over the older inspection method.

Highlight of the No-Host banquet was the showing of "The Independent Story" seen by many of those in attendance for the first time.

On Feb. 16 Howard Cox of the Linn County Telephone Co., presented some practical do's and don'ts on the use of line concentrators.

He stressed that this equipment is to be used for a specific job and has many application limits, including the type of facilities available for its use.

Pacific Northwest Bell followed with working models of the farm and home Interphone systems. The operation of the units and the method of installation were explained in detail.

Closing the session was a talk and demonstration by Tom Kent and Mel McGregor of West Coast Telephone Co. on the use of various pieces of standard test equipment. They asked one question: "How accurate is your test gear and when was it last checked?" The West test set, which is coming back into use, was demonstrated.

OK Ore. Stock Issue, Sale

The Oregon Public Utility Commissioner on Mar. 6 authorized the Mt. Angel Telephone Co. to issue and sell 133⅓ shares of common stock at $30 per share. Mt. Angel states that it planned to raise $4,000 to pay for the purchase and for the installation of trunk lines for DDD and central office equipment.

Jacob B. Taylor, GT&E Corp. Vice President, Dies

JACOB B. TAYLOR, 63, vice president-staff, of General Telephone & Electronics Corp., died on Mar. 14 at Columbia Presbyterian Medical Center, New York. Mr. Taylor had been ill for the past few weeks.

Mr. Taylor was elected vice president-finance of General Telephone & Electronics Corp. in 1957, and elected executive vice president - finance in 1959. For reasons of health, he asked to be relieved of that assignment, effective Jan. 1, 1962, on which date he became vice president - staff on special assignments.

Prior to joining the General System, he was vice president, business manager and treasurer of The Ohio State University, having held that position since 1946.

He received his bachelor of science degree in economics from the Wharton School, University of Pennsylvania in 1921, and his master of arts degree from the University of North Dakota in 1923.

He was a certified public accountant in both Ohio and North Dakota. Mr. Taylor received the honorary degree of doctor of administration from Bowling Green (O.) State University in 1951.

Mr. Taylor served as head of the accounting department at the University of North Dakota from 1921 to 1927, holding the posts of instructor, assistant professor, and associate professor. He also was head of the accounting department at Ohio State University from 1930 to 1946; associate professor (1927-1932); and professor (1932-1957).

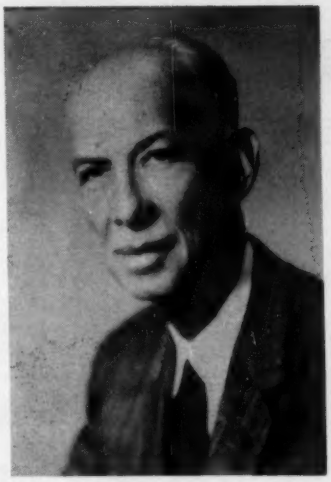
In 1957, he became emeritus professor of accounting at Ohio State.

From 1939 to 1942, he was Director of Liquor Control in Ohio while on leave from the university.

During World War II, he was Chief of the Cost Accounting Procedures Section, Office of the Fiscal Director, Headquarters Army Service Forces, Washington, D. C., holding the rank of lieutenant colonel.

Mr. Taylor was a director of a number of General Telephone & Electronics subsidiaries. In addition, he was a director of The Lincoln National Life Insurance Co., of New York, and a member of the board of trustees of the Teachers Insurance & Annuity Association of America.

Prominent in many organizations, the GT&E executive was a past president of American Accounting Association, of the Central Association of College and University Business Officers, of Beta Alpha Psi, and of Ohio State Faculty Club.



J. B. TAYLOR

He was a director of American Gas and Electric Co., New York, from 1954 to 1958.

He is survived by his widow, Mrs. Minnie Johnson Taylor of New York City; a daughter, Mrs. Frederick B. Johnston of Brooklyn, N. Y.; a grandson, David T. Johnston, also of Brooklyn; two sisters, Mrs. Everett S. Ingram of Drexel Hill, Pa., and Miss Ruth L. Taylor of Woodbury, N. J.; three brothers, Robert W. Taylor of Woodbury; T. Vernon Taylor of Baltimore, Md., and Donald H. Taylor of Fort Thomas, Ky.

Obituary

MRS. LYDIA GOWEN, 101, the oldest resident of Iowa, and the oldest retired employe of the Lincoln (Neb.) Telephone & Telegraph Co., died on Mar. 3 in Carroll, Ia.

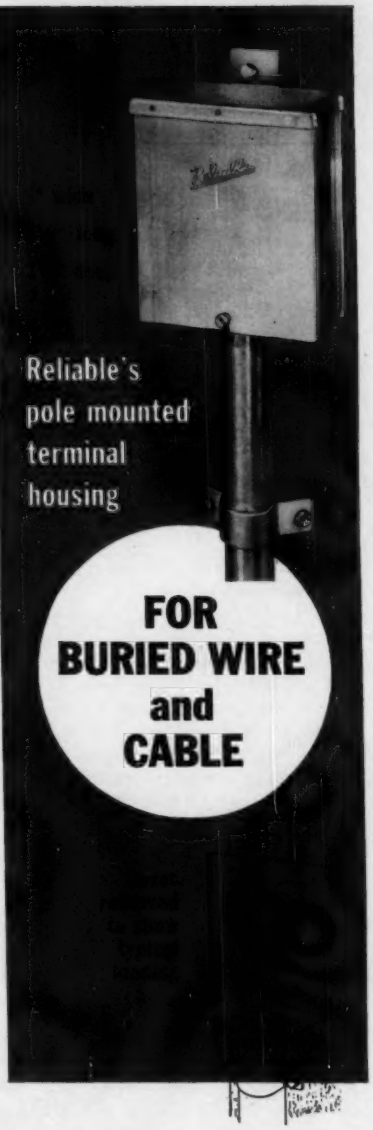
Mrs. Gowen, for nearly 20 years, was an operator, and later, worked as contract chief operator at the LT&T's Ong exchange.

Born in 1860 in St. Charles, Mo., Mrs. Gowen had many recollections of Civil War days. Before working for the telephone company she lived on a farm in Clay County, Neb.

She retired in 1941 when the Ong exchange was converted to dial operation.

Mrs. Gowen was one of the charter members of the Rebekah Lodge in Nebraska.

She is survived by two daughters, one son, 20 grandchildren, 42 great-grandchildren and 14 great-great-grandchildren.



The heavy aluminum housing is designed to accommodate a variety of wire terminal blocks and protectors. It has a sliding cover on an L shaped back and base. The base has 2 neoprene grommets and a U shaped entrance for a 1⅛" prenotched galvanized U cable guard, or a standard 1⅛" guard plus guard adapter.

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Helpful Literature

NEWS IN ELECTRONICS—Newly available from the Cleveland Institute of Electronics is a 16-page pocket-size booklet entitled "What's New in Electronics", designed, according to its cover blurb, for "management, technical, and training" levels in communications and other industry.

This publication is a bi-monthly, first issue covering January-February, 1962. The opening editorial, by the president, G. O. Allen, stated it was created with both engineering and non-engineering personnel in mind, and to be helpful in technical training activities.

A sampling of the contents revealed an illustrated article on numerical control as an industrial tool; a student success story (a tie-in with training for electronics in the military); a plug for the institute's "Electronics Data Guide"; and an article, "The Middle Link of the Engineering Team", written by Ralph J. Schmotzer, editor, and market research director of Cleveland Institute of Electronics. Request HL736.

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RADIO MULTIPLEX SYSTEM—A new product bulletin is now available on the Lynch Radio Multiplex System, type B121R.

The new system, according to Lynch, permits the adding of up to 62 carrier-derived voice frequency channels on point-to-point microwave radio systems. The B121R utilizes sideband suppressed carrier to permit maximum utilization of the microwave baseband.

Special features of the system include:

In-band signalizing system which provides full ringdown, dial, supervisory and party-line signaling capabilities. The B121R Radio Multiplex System is described as combining the flexibility and economy of both stackable and group systems. It also includes special provisions for easy drop-out and reinsertion of any of the first 10 or 11 channels or complete groups of channels. Request HL737.

•

DESK STAPLER—Heller Roberts Instruments Corp. has added a new section to its catalog to describe its heavy-duty Model SP-63 Desk Stapler.

The manufacturer states that the Model SP-63 was designed with features basically similar to Heller industrial staplers; it is used in business offices by architects, lawyers and map makers, and in libraries.

Such heavy-duty jobs as assembling blue prints, business forms, court memoranda, charts, folders, maps, and proposals, and stapling of up to 120 sheets of bond paper are typical uses, Heller Roberts states, for this stapler.

It uses either oval crown staples, for work where staple removal may be desired, or flat crown staples where flush crown fitting is important, the company adds.

Other features include:

Rubber mounted base to prevent marring desk tops.

Throat depth of more than four inches.

Specifications: length 15½ inches; height, 11¼ inches; weight, 9 lbs.; staple crowns, ⅜ inches; leg lengths, 5/16 inch to ½ inch. Request HL738.

•

ELECTRONICS DATA—A revised and enlarged edition of the "Allied Electronics Data Handbook," containing an up-to-date listing of most commonly used tables, formulas and reference material, has been published by Allied Radio Corp.

Edited by Lt. Cdr. Nelson M. Cooke, USN (Ret.), electronics authority and author, this third edition of the handbook is a practical, informative guide for students, technicians, engineers, and is designed to be useful in classroom, lab, or in the field.

New in the revised edition are basic transistor formulas and symbols; common emitter and amplifier circuit configurations; and vacuum tube counterparts; a transistor radio and mercury battery interchangeability guide; charts showing direct interchangeability between American and British tubes; the latest Greek alphabet designations; information on db gain and loss, and attenuator network formulas.

The data in the handbook were carefully selected and prepared by Allied technicians, and the handbook is arranged for ready reference.

All reference material of earlier editions has been retained, including: Log and Trig tables; EIA and military color codes; math constants; fundamental algebraic formulas; most-used electronic formulas and abbreviations, plus other essential information.

Electronics Data Handbook (Cat. No. 37 K 398) is priced at 35 cents, postpaid in the U.S.A., and is available from Allied Radio Corp., 100 N. Western Ave., Chicago 80, Ill.

Charity Takes Many Forms

"We are always railing at the politicians, but it's likely that if they were not in politics we should have to support them some other way."—H. L. MENCKEN.

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NATION'S CAPITAL

Continued from page 18

tions program be operated within the framework of the free enterprise system and not as a "TVA in Space." We have ample evidence in the history of the Post Office Department that the government cannot operate a business profitably or particularly efficiently. Fortunately, the government ownership proposal has not attracted very many supporters on Capitol Hill.

It's time for the countdown. We need to make a decision, pass the necessary legislation and get on with the job under private enterprise.

Space Report Published

The government has published a comprehensive study of the entire space communications satellite picture. Entitled "Communication Satellites: Technical, Economic and International Developments," the staff report of the Senate Aeronautical and Space Sciences Committee is available for $1.00 from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. It contains many illustrations and is highly recommended to anyone interested in knowing more about the field of satellite communications.

Among numerous other things, the report contains a warning that Americans must prepare for the possibility that the Russians will wait until the U. S. has orbited a few low-level satellites before launching a satellite system of their own using high-powered boosters. The report noted that the Soviets have been silent for the most part about their propaganda ambitions for message-sending satellites. It cautioned that "the most powerful propaganda mill in the world is not going to leave to chance the development of space-age communications."

Subsequent developments have led some government officials to conclude that the Russians might be willing to cooperate in peaceful space projects.

The Soviet Union has indicated willingness to cooperate with the United States in the development and use of a weather satellite system, according to the chief of the U. S. Weather Bureau. Dr. Francis W. Reichelderfer told the House committee that there had been some evidence of a Soviet change in attitude in recent weeks. Moscow had previously been cool to the program. This has stirred some hope among U. S. officials for attaining the goal of interna-

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"Of course I know what the trick is. He's using CF&I Galvanized Strand."

While we can't guarantee that CF&I Galvanized Steel Strand can do the old Indian rope trick, we *do* know that there's no better strand for supporting telephone cables.

As a result of some modern engineering and production techniques, CF&I Galvanized Steel Strand offers you a unique combination of strength, flexibility and corrosion-resistance. The end-result is a messenger strand that is easy to install, provides years of trouble-free service and cuts maintenance costs.

Made in 7- and 3-wire constructions, CF&I Galvanized Steel Strand meets ASTM specification A-122. Or, it can be tailor-made to your particular requirements. Call your nearby CF&I sales office or distributor for complete details on CF&I Galvanized Steel Strand, Telephone Line Wire and Tie Wire.

The Colorado Fuel and Iron Corporation
Denver • Oakland • New York
Sales offices in Key Cities

tional cooperation in the peaceful uses of space.

The proposal on weather satellites had been set forth in a letter from President Kennedy to Premier Khrushchev outlining possible areas of space cooperation between the two nations. The letter suggested that the Soviet Union build a ground station to receive cloud photographs taken by weather satellites such as those now being developed by the United States. It was also proposed that the two nations set up a closer, regular arrangement for exchanging weather information obtained from satellites. The President proposed that the United States and the Soviet Union agree on the joint use of a communications satellite system through the allocation of frequencies and the establishment of ground stations.

Kennedy to Address Chamber

As predicted previously in this department, President John F. Kennedy will address the U. S. Chamber of Commerce's annual meeting Apr. 30 in Washington. Participating will be some 4,000 delegates from associations, business firms and chambers of commerce in all 50 states and American chambers in 21 foreign countries.

ETV in House-Senate Conference

Educational television (ETV) enthusiasts were cheered by the passage in the House of a bill which would provide more than 25 million dollars for the development and construction of educational TV stations.

An amendment offered by Rep. Robert P. Griffin (R., Mich.) knocked out a provision that made non-profit, community, educational TV organizations eligible for the aid. The amendment restricts aid to public educational agencies and to tax-supported colleges. This had been argued about during the three years that the bill had been considered by the House Commerce Committee. The committee decided that community groups, under proper supervision, should be eligible for aid. An estimated half of the 60 operating educational TV stations in the country are licensed to non-profit, community groups.

The federal aid to ETV measure has been expected to touch off a program of rapid expansion in educational TV, pointing toward regional and national networks.

Rep. Samuel S. Stratton (D., N. Y.) urged a House-Senate Conference Committee, now considering the legislation, to restore private non-profit agencies to legislation calling for 25 million dollars in federal grants to

help educational television. The bill, as passed by the House, would limit the matching grants to public educational institutions.

Stratton, a candidate for governor of New York, said the amendment would prevent any federal assistance to most educational television organizations in his state. He said: "What a mockery to pass a bill to help educational television and then amend it to prevent any aid going to just those agencies who have been most interested in getting educational television started."

NLRB to Determine Eligibility In Union Vote in N. C.

Spokesmen for Carolina Telephone & Telegraph Co.; Tarboro, N. C. and the Communications Workers of America appeared on Mar. 14 before a representative of the National Labor Relations Board at a hearing held at the Edgecombe County Courthouse in Tarboro.

The hearing resulted from a petition filed by the CWA (AFL-CIO) for an election among plant employes of the Carolina company to determine if they desire the union as their collective bargaining agent.

At the hearing the union took the position that only plant department employes throughout the company should be permitted to vote. The union sought to exclude supervisors, professional and confidential personnel who are employed in the plant department.

The company's position was that all non-supervisory employes in all departments should be given an opportunity to vote. This would include employes in the traffic, engineering, commercial, accounting and plant departments.

Both the company and the union have until Mar. 27 to file briefs with the NLRB. The decision as to voting eligibility will probably be announced several weeks after that date.

Named to N.C. Traffic Post

Milford J. Lamb, traffic supervisor at Jacksonville, N. C., for the Carolina Telephone & Telegraph Co., Tarboro, has been named district traffic manager at Rocky Mount succeeding R. M. Glover, who has been called to active duty with the Air Force.

Berlin Adds 7-Digit Numbers

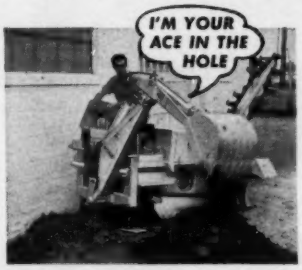
Berlin is running out of telephone numbers as service is expanded. Some 25,000 new telephones will be added in 1962, the Berlin Tourist Office reports, and many will bear new seven-digit numbers.

Gives you a new sense of mastery over digging time and costs!

New DAVIS T-78
Trencher and Dozer with D-100 Backhoe

This revolutionary, all-purpose rig handles all of your trenching, digging, and ditching jobs from 4" to 36" wide to 8' 4" deep. It adds the finishing touch by backfilling and leveling up to the final grade. The new 18-h. p. Davis T-78 trenches smooth and clean 18" wide, 26" deep to 4"/6" wide, 78" deep and at varying widths and depths in between. The power-packed Davis D-100 Backhoe, designed as quick-detachable attachment for the T-78, takes over on bell holes, laterals, septic tanks, and other excavations to 8' 4" deep, or for trenching in extremely rocky areas which no trencher can touch. Performance and quality are built in. Efficiency, compactness to work in areas inaccessible to conventional equipment, unusual versatility and digging ability, and low investment will make you "rigged for profit"! Special Davis Hustler Trailers are available for transporting.

THE T-78 has ground-gripping (track) traction, high flotation (3.6 lbs. psi ground pressure), and is only 37" wide. Spoil can be delivered to left or right. Trenches up to 840 feet per hour.



THE D-100 BACKHOE has in access of 10,000 lbs. pryout pressure and a full 180° operating arc at constant speed. it's compact, and power-packed with no compromise in quality. **Also available for most utility tractors.**

Other Profit-Rigged Davis Trenchers

DAVIS T-66 TRENCHER

Digs where others can't because of its compact design, ground-gripping traction and high flotation. Trenches from 16" wide to 24" deep, to 4" wide, 60" deep.

DAVIS W-36 TRENCHER is a trenching man's trencher. Positively self-propelled by 6-speed winch drive. Digs from 3" to 6" wide, 36" deep. Has 6-h. p. Briggs & Stratton engine.

SEND ME IN FOR COMPLETE FACTS

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Please send me free literature on the T-78 ☐ D-100 Backhoe ☐, T-66 Trencher ☐, W-36 Trencher ☐, Davis Hustler Trailers ☐.

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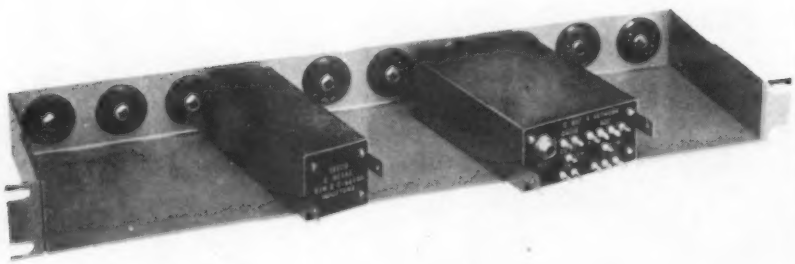
C-837A FOR LOADED CABLE



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OR 5—C-837A NETWORKS PLUG INTO A

1-¾" x 19" SHELF

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Loeffler to New Post At Wisconsin Telephone Co.

Harold F. Loeffler has been appointed to the new position of associate chief engineer of the Wisconsin Telephone Co. Mr. Loeffler, who started with the company in Milwaukee in 1929, is currently economic studies engineer for American Telephone & Telegraph Co. in New York.

He will report to Wisconsin Telephone Chief Engineer, Robert C. Siegel. Reporting to Mr. Loeffler will be the engineer of equipment, the engineer of buildings, and the general engineering personnel supervisor. The new associate chief engineer expects to assume his position in Milwaukee about Apr. 1.

Mr. Loeffler will also serve as chairman of a new interdepartmental committee organized to better integrate the company's engineering functions and to develop broad-gauge groups responsible for all aspects of engineering on a geographical basis. Four departments will be represented on the committee.

A native of Milwaukee, Mr. Loeffler has held various positions in the company's plant and engineering departments in Milwaukee, Appleton, and Madison.

He joined the American Telephone and Telegraph engineering staff in New York in 1958 as toll equipment engineer. In 1959, he was named regional plant extensions engineer for the eastern portion of the Bell System. One year later, he was appointed to his current post as economic studies engineer.

N.J. Bell Employe Cited for Rescuing Aged Man from Fire

George T. Goodenow Jr. of Woodbridge, N.J. has received a New Jersey Bell Telephone Co. employe citation for rescuing an aged man who died of injuries suffered in a fire on Jan. 1.

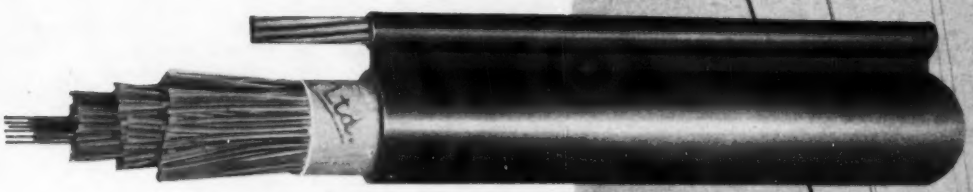
Mr. Goodenow, a staff assistant in the New Brunswick, N.J. office of the company, is also a member of the Woodbridge Fire Company.

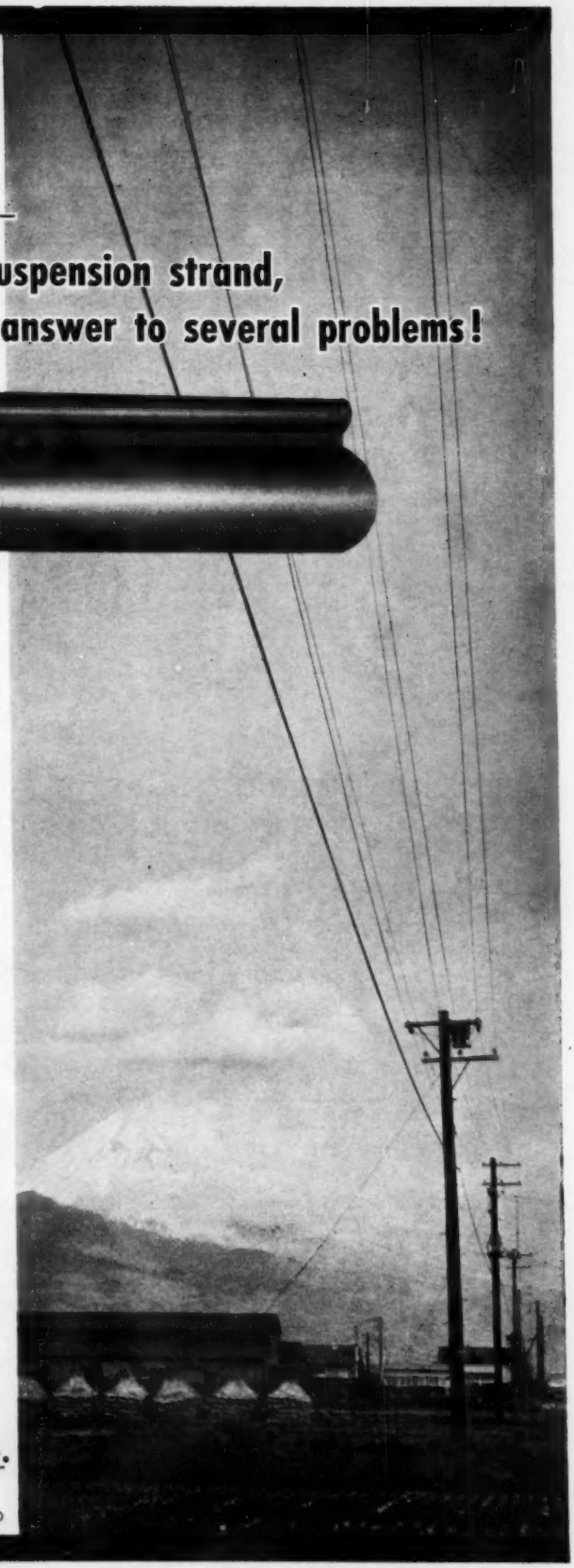
On New Year's Day, along with other fire-fighters, he responded to an alarm. The occupant of a house had been forced out by flames, and told Goodenow that his 75-year-old brother was trapped in the smoke-filled basement. The fireman and a colleague groped through the basement and found the man. Goodenow removed his own gas mask and put it on the victim to remove him from the building.

Although rescued, the elderly man died two hours later of burns and smoke inhalation in Perth Amboy General Hospital.

HITACHI

This is the Gourd-type cable — a new shape that contains a suspension strand, a communication line, and the answer to several problems!





This unique local or exchange area cable developed by Hitachi derives its distinctive "gourd shape" from the polyvinyl chloride sheathing that totally encloses the polyethylene-insulated communication line as well as its parallel suspension strand. It can be used in all the applications of conventional PE-insulated PVC sheathed cable and, in addition, is suitable for installation on steep grades where paper-insulated lead sheathed cable could not be used.

Another notable feature of the gourd-shaped cable is that it dispenses with the need for hangers, making installation easier, cheaper and faster. It can be installed close to buildings and power lines with complete safety (the suspension strand can be grounded to reduce electrostatic induction in the latter instance), retains high transmission qualities under the most trying weather conditions, and successfully withstands attack by salt or airborne chemicals.

Communication Equipments

Hitachi, Ltd.

Tokyo Japan

Cable Address: "HITACHY" TOKYO

NEW PROPERTY STUDIES

Concluded from page 19

may be obtained automatically, upon request, prior to June 15, as to the 1961 filing, so that those companies which made the original request before Mar. 15, and subsequent request prior to June 15 would have until Sept. 15 before having to file their 1961 returns.

Furthermore it is assumed that telephone companies could amend their 1961 returns (and also those for all "open" years prior thereto) to include the results of the Treasury action (if it was made effective as to that year) or, in any event, to reflect the result of any special engineering study which they have made or had made.

In the latter case, the claim for higher depreciation would be based on their own special engineering study and not on the Treasury rate adjustments, so that, even if the latter applied only to 1962 and thereafter, the former would be effective for prior years, if acceptable to the Internal Revenue Service.

Even if the rates applicable to the telephone industry should not be adjusted in the currently expected revision of Supplement F, it seems likely that the fact that the Internal Revenue Service will be aware that depreciation rates have been increased with respect to other industries, and the general recognition, in Washington, that higher depreciation rates are justified in many cases, will predispose agents examining the tax returns of telephone companies, which claim higher depreciation allowances as a result of engineering studies of their properties, to treat such claims with liberality where the taxpayer's case is reasonably substantiated.

Obviously, such claims may be more effective in convincing the Internal Revenue Service that higher rates are justified when based on engineering studies made by reputable outside engineering firms. But even where studies are made by the telephone company's own staff, without outside help, they may well receive serious consideration under these circumstances, if the taxpayer has reasonable arguments in its favor. Where such claims are supported by the record of retirements of property in recent years, they would, of course, be more persuasive.

Studies by the staff of a telephone company (without outside assistance) should be particularly acceptable where the system is so small that it could not reasonably be expected to go to the expense of having a study made by independent experts.

Under the favorable atmosphere which appears likely to prevail for some time in the matter of depreciation allowances, it would seem to behoove any telephone company, which has a reasonable expectation that a current study of its properties should substantiate a claim for faster depreciation write-offs, to give the matter of making such a study serious consideration; but to delay making the study until more is known of the likely treatment of telephone companies under the studies now in progress by the Treasury Department.

In view of the somewhat complicated situation presently prevailing, such telephone companies should watch closely for developments in Washington which affect higher depreciation allowance either for the telephone industry or for other industries, and then shape their plans accordingly.

On Savoring Life

"Hope writes the poetry of the boy, but memory that of the man. Man looks forward with smiles, but backward with sighs. Such is the wise providence of God. The cup of life is sweetest at the brim, the flavor is impaired as we drink deeper, and the dregs are made bitter that we many not struggle when it is taken from our lips."—A. MONOD.

Looking Back

"We could all be better citizens if we could better understand American history and American Traditions."—FRED SCHWENGEL.

HELLER GRIP STAPLERS—Most complete line of wire stapling guns on the market! For any fastening job . . . telephone, electronic or low-voltage electrical. Securely and automatically fasten braided, jacketed or stranded wire, tubes or cables. Protect wire while they tack it. *Request Catalog TKL.*

heller-ply STAPLES—Rust-proof, corrosion-proof, salt-water-proof. Won't stain or run. Biggest staple advance in 25 years. Steel base, copper-electroplated for lifetime protection. Cost only half as much as staples made of Monel, stainless steel or other expensive metals. *Request Catalog SPHP.*

A-6581A

If it's a HELLER it's tops in its field

HELLER ROBERTS
Instruments Corporation
6115 Carnegie Avenue • Cleveland 1, Ohio

"From now on, get their name and phone number!"

CENTURY 21

Continued from page 25

telephone industry. How the Bell Telephone Laboratories applies the joint effort of its scientists not only to telephony but to defense and the conquest of space will also be demonstrated.

In the business and industry section of the building, the Data-Phone service concept—which sends recorded information across the country at a high rate of speed—basks in the limelight.

Nearby is the residence telephone area where the main show is an audience participation game designed to emphasize the benefits of adequate communication in the home.

Moving into the west wing the visitor finds a hospitality and public telephone center. The room's decor revolves around a large map showing Pacific Northwest Bell's interest in regional development. Named the Northwest Room, the wing features eight public telephone booths designed expressly for Century 21.

One booth will be used for free demonstrations of long distance calling. Telephones will be dialed by push-button and the entire instrument is mounted on the wall.

Families will be able to get together in a special "family booth" accommodating four or five people. Mounted speakers and microphones permit the whole family to speak and hear without using individual phones when describing the wonders of Century 21 and the Pacific Northwest to friends and relations back home.

Hanging lighted transparencies carry the Northwest theme throughout the room. Elongated cubes, lighted from within by full-color scenes of the region, are suspended above a complex of chairs where the foot-weary visitor may relax.

There is much more to see and do at Century 21, however. Fair officials estimate that it will take two days to get a decent sampling of the exposition and at least five days to take it all in. To witness this world of tomorrow takes a comparatively small sum: Family bonus books cost $10, a child's bonus book is $6.50, an adult's admission ticket is $2.00 and a child's is $1.00.

Expo-Lodging, a non-profit organization pooling the housing resources of the Greater Seattle area, is currently receiving 1,500 accommodation requests a day from out-of-state visitors.

Among the "must see" items is the Century 21 Coliseum. Inside, a huge "bubbleator"—a rotating elevator shaped like a bubble—will lift fair-goers up into a "floating city" where they will view the homes, offices, cars and other paraphernalia of the next century.

In the U. S. Science Pavilion the visitor will witness perhaps the finest scientific exhibit ever assembled by a nation. It will, of course, be emblematic of the country's recent space achievements. Fair-goers will take a hypothetical rocket ride. Out into space, a billion light years beyond the moon and Mars, the man of today will fly into the world of tomorrow.

Out on the Gayway waits 2 million dollars worth of fun including a simulated bobsled ride complete with "mountains", a giant sky wheel, and a "barrel of fun" which whirls the fair-goer around by centrifugal force.

An appetite-whetting variety of cafes and restaurants will delight the gourmet and anyone else who happens to be hungry. One of the most spectacular eating places is the 60-story

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s for CONSOLE
o for CONVENIENT
for CONSERVE...
as in: "CONSERVE the information operators time and speed up customer turnover."

BOOTH PRODUCTS
by BENNER-NAWMAN, INC.

TAKE A BIG STEP TOWARD **SAFETY**
WITH **DUO-SAFETY LADDERS**

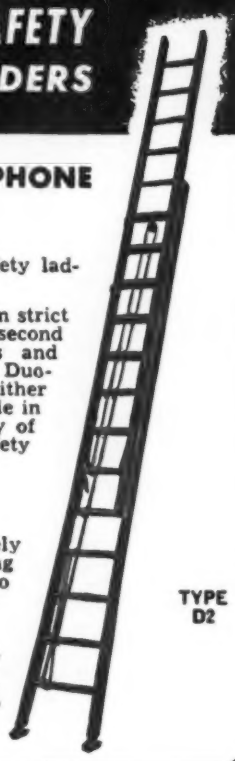
... CUSTOM DESIGNED FOR TELEPHONE MAINTENANCE WORK!

Here's one fine example of the many Duo-Safety ladders ideal for telephone maintenance work.

Type D — a truly great extension ladder built in strict accordance with safety regulations. Rungs are second growth hickory, reinforced with steel rods and equipped with special automatic locks and Duo-Safety's famous Safety Shoes. Made with either straight or parallel side rails, Type D is available in one, two or three sections — in a large variety of sizes. Write for free catalog on all Duo-Safety ladders.

IMMEDIATE DELIVERIES!

Duo-Safety ladders will be shipped immediately upon receipt of order! A planned stock-piling program assures really fast action — there's no delay the Duo-Safety way!



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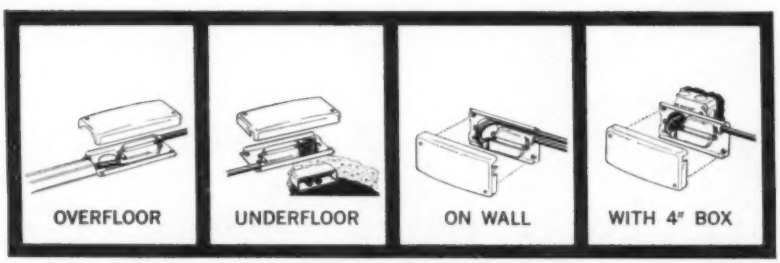

Complete redesign of 2657T Service Fitting gives new advantages as housing for plug and connector. Strong die-cast cover eliminates need for grommets at notch and ingress for cable. Slightly larger size simplifies assembly. Cover bosses ease alignment of cover and base. Phone for more information.

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THE WIREMOLD COMPANY ■ HARTFORD 10, CONNECTICUT ■ AD 3-6251

high space needle which is the tallest structure west of the Mississippi. Visitors can visit the needle just for the view, too.

Some of the finest entertainment in the world will be at the exposition. Victor Borge, Nat "King" Cole, the old Vic Company, Louis Armstrong, the Philadelphia Orchestra, Benny Goodman, the National Greek Theatre, Robert Frost, the Folk-lorico Ballet of Mexico, Carl Sandburg, Ella Fitzgerald —just to name a few.

There will also be art with a capital "A". Museums around the world are lending fair promoters Rembrandts, Picassos, Renoirs, El Grecos, Monets and a host of other famous masterpieces.

Away from the fair grounds, the choice of side trips is virtually endless. One-day journeys can be made to Mount Rainier, to the Pacific Ocean, to the San Juan Islands, to Canada— to lakes and rivers, forests and mountains, to almost any kind of recreation site imaginable.

The history of Century 21 started with little fanfare. The first mention of a world's fair appeared in Seattle papers during 1955. A special memorial was proposed to the city council asking for consideration of a world's fair for Seattle in 1959.

In 1956, Seattle voters approved a bond issue for the fair grounds to be combined with the new project. Fair promoters went to work at raising funds. Federal, state and city monies were authorized for the project. The date was shifted to 1962, a Man-in-the-Space-Age theme was picked and the Bureau of International Expositions gave Century 21 its approval as the only sanctioned world's fair during the 1960's.

Such notables as President Kennedy, America's team of astronauts and the Duke of Edinburgh will be among the estimated 10 million people who will visit the fair during its six-month stand. That makes 55,000 persons a day. It has also been estimated that about 2,000 people will go through the Bell System exhibit each hour.

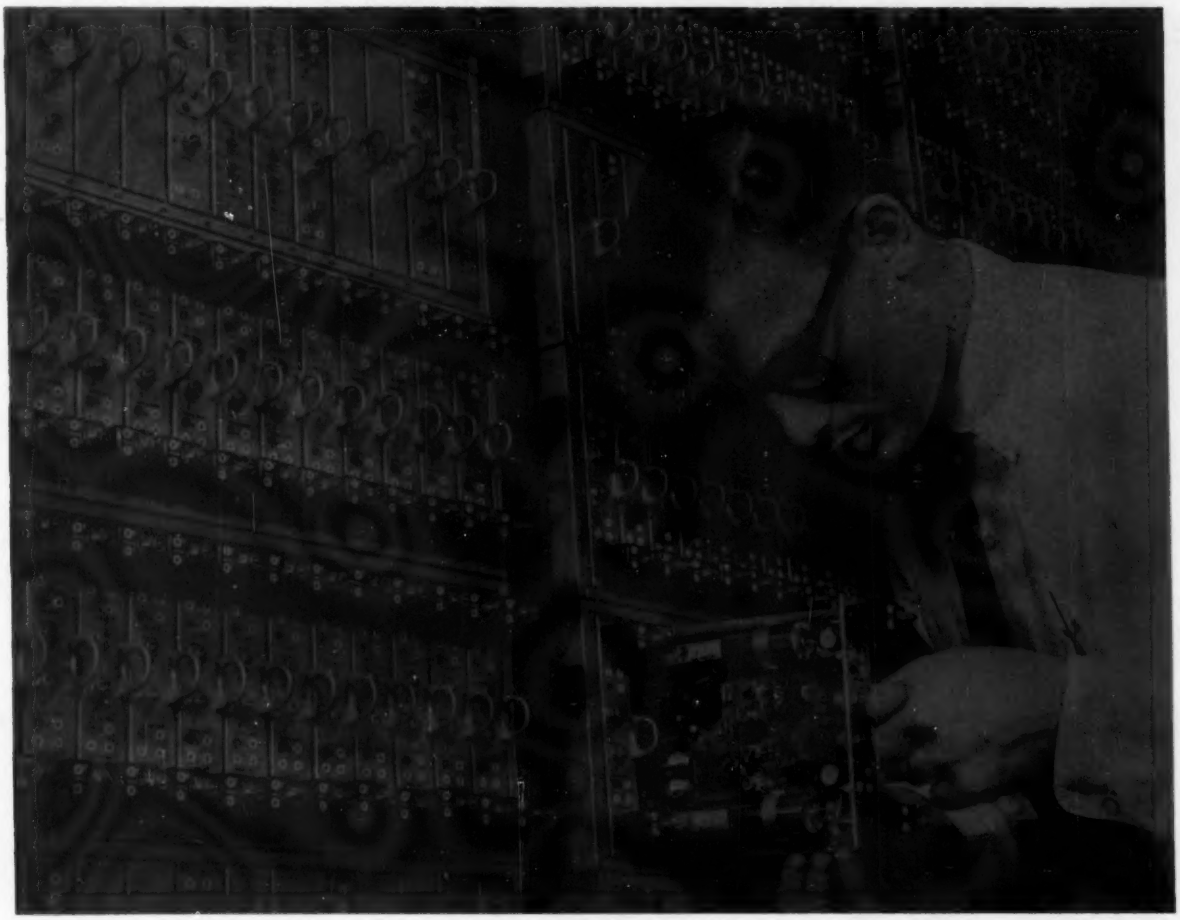
By the time these men, women and children have left the fair grounds a better understanding of communications—past, present and future—should be theirs.

See Own Faults

"Endeavor to be always patient of the faults and imperfections of others; for thou hast many faults and imperfections of thine own that require forbearance. If thou art not able to make thyself that which thou wishest, how canst thou expect to mold another in conformity to thy will?"—THOMAS Á KEMPIS.

Need Fastest Delivery?

CALL COLLINS



Collins MX-106 Transistorized Carrier provides up to 600 toll-quality voice channels, saving up to 80% in space and 90% in power consumption.

The call: Recently a customer called Collins for 1,560 channel ends of MX-106 Transistorized Carrier. *Delivered:* Within 90 days! Whatever your communication requirements — early in-service date or special capability — take advantage of Collins volume production of the industry's *broadest microwave and carrier product line.* □ If your operation calls for fast delivery of quality equipment, call Collins . . . Dallas, area code 214, ADams 5-2331. Collins Radio Company, Dallas, Texas.

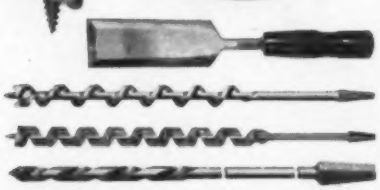
COLLINS

GREENLEE BITS

for all impact wrenches with standard 7/16" or 5/8" hex adapters

Bore 3/8" to 17/16" holes in telephone or power line poles quickly and easily with the new Greenlee impact wrench bits. *Simplify and speed pole work* . . . these new bits let you use impact wrenches with 5/8" or 7/16" hex adapters . . . *get the job done faster . . . more economically.* And linemen on pole or platform have fewer tools to carry. Hex shanks are 1-5/8" long with a deep retainer recess that snap locks the bit into the impact wrench adapter. Tool change is fast, simple. Single twist bit has outlining spur for smooth, deep-hole boring. Coarse screw point, one spur, and one side lip assure long service life. Choice of 14 standard stock sizes.

TOOLS FOR CRAFTSMEN
GREENLEE



The Greenlee line also includes utility chisels for cutting daps in line poles and a wide choice of bits, drills, ship augers for power drill or brace use. See your distributor or write for literature.

GREENLEE TOOL CO.
2014 Columbia Ave., Rockford, Illinois

IRE-AIEE Boards Agree On Broad Merger Principles

The boards of directors of the Institute of Radio Engineers and the American Institute of Electrical Engineers, in separate New York meetings, on Mar. 9, approved in general the broad principles of the proposed consolidation of the two engineering societies.

The IRE group, meeting at IRE headquarters, was presided over by Patrick E. Haggerty, president. Warren H. Chase, president of AIEE, presided at the meeting of the electrical engineers in the United Engineering Center.

The two presidents jointly announced that there was general agreement in the over-all aspects of the proposed move. The constitution, agreement of merger and principles of consolidation will be submitted to the combined membership of both organizations for approval, it was stated.

Directors of the organizations voted in October, 1961 "to move actively toward the consolidation of the activities and organization" of both groups. During the winter general meeting of the American Institute of Electrical Engineers in New York, on Jan. 31, the proposed consolidation was debated at a special meeting. The discussion, at the time, was generally favorable and it was proposed that the consolidated society might be known as the Institute of Electrical and Electronics Engineers—an international body with a membership of some 150,000.

If the memberships approve the consolidation by a mail vote this summer, it is contemplated that the new society will be accomplished by Jan. 1, 1963.

In general, the boards agreed on grades of membership, establishment of regions in North America, sections, and student branches; on serving professional as opposed to geographic fields of interest through professional technical groups; the naming of standing committees; publication of two periodicals, *Electrical Engineering* and *Proceedings of IEEE;* a general annual meeting each Spring open to all members, together with an electrical and electronics engineering show; a second meeting yearly in conjunction with a regional meeting or a technical conference; and appointment of a 14-man committee to select and employ a general manager, and to act as a nominating committee.

At present, the membership of IRE is 97,000, and that of AIEE is 70,000 (both figures include students); and the combined assets of the two societies total approximately 6½ million dollars.

IRE was established in 1912, and AIEE in 1884. For many years, the activities of the two organizations have overlapped, especially at the student level where joint student branches are common in many engineering schools.

Lost Art?

"In eighteenth-century France, vital statistics weren't enough—you had to be able to talk, and talk well, or you became that fatal thing, a bore, and you weren't welcome anywhere."—Audrey Erskine Lindop, speaking in the BBC "Woman's Hour" program.

Another PBX Operator Praises Brackett Articles

EDITOR, TELEPHONY

I have just finished your Feb. 17, 1962 issue and in particular, the article by Mr. Gilbert R. Brackett "Is the PBX on the Way Out?" I look forward to articles like this in each issue, because I am the PBX operator for VAC and want to make the switchboard run smoothly and efficiently.

In reading the article, I noticed and read the letter from Theresa K. Ganss, in which she mentions another article by Mr. Brackett entitled "PBX's Most Important Person—The Girl at the Board." (Oct. 30, 1954). My purpose in writing you is that if it is possible for you to send me a reprint of this article, I would appreciate it very much. It sounds like the sort of thing I need for our board for training new girls.

Since coming to work for VAC, I have read every issue of TELEPHONY that we have received and look forward to reading it for a long time.

Thank you for your attention in this matter.

Sincerely yours,
Evelyne J. Fisher
PBX Operator
Verified Audit Circulation Corp.
Los Angeles, Cal.

TRAFFIC PAGE

Concluded from page 23

Traffic Quiz

(1) Q. How should a Mark-Sense ticket be prepared on a Special Collect (Enterprise) call?

A. Write the special Collect number in the "Bill To" space, and mark the "Spec. Col." and "Omit" bubbles. The called place and telephone number are entered in the usual way.

(2) Q. How is a credit card number entered on a Mark-Sense ticket?

A. Enter the credit card number on the first line of the "Bill To" space and mark the "CR CD" and "Omit" bubbles.

(3) Q. Why should the "Coin" bubble always be marked when the calling number is a coin telephone?

A. The "Coin" bubble identifies the calling number as a paystation just as "PRE" or "PO" does on a regular toll ticket.

(4) Q. Why is it necessary to have both a "Coin" and a "Coin Paid" bubble on Mark-Sense tickets?

A. The "Coin Paid" bubble is marked only when coins have actually been collected at a coin telephone.

(5) Q. How should a collect to a coin telephone ticket be passed to the TTC?

A. Pass the ticket details in the usual way, passing the calling details first. Enter the usual ticket details, but enter "T" in the "Spec. Inst." space instead of at the top.

NOTE: *The answers to these questions may vary in some offices, according to local instructions and the type of ticket used.*

Kennedy, Industry Spokesmen Urge: Train Technicians

One of the most urgent needs of this country today is for more trained personnel in the engineering field, said Fred C. Gladeck, president of the M & T Co., of Philadelphia recently. Mr. Gladeck heads an engineering firm engaged in designing and developing electronic and electro-mechanical installations for commercial and government projects.

Industry, in general, and government have been aware of the decreasing interest shown by men and women in science pursuits.

In a recent press conference, President Kennedy termed the decline, "a matter of growing concern." President Kennedy also noted that the National Science Foundation, at the conclusion of a recent study, had reaffirmed Russia's well-known emphasis on the training of engineers and other scientific personnel.

Dr. Frank Lee, manager of training services for the Raytheon Corp., pointed out that the technical and engineering shortage was not confined to any one area. Dr. Lee further stated, "there are only 7 technicians for every 10 engineers in the United States; and of the 7, only 4 have been trained in technical institutes. The balance of the technicians have been trained on the job in company ranks."

This is the current situation in the United States at a time when the outcome of the world's crises depends on the contributions of technical brain power. The United States is turning out about 100,000 technicians yearly, the Soviet Union, about 900,000. In order to rectify this imbalance, some steps have already been taken. The government's Science Advisory Committee, the Federal Council for Science and Technology, and the Engineering Manpower Commission of Engineers Joint Council are jointly studying the situation, and the engineers themselves are preparing a program that will in-

NEW!

POW-R-SPADE®

SELF-PROPELLED TRENCHER

MODEL 7200

Rugged, trouble-free POW-R-SPADE digs down to 6 ft.!

Yes, this larger self-propelled POW-R-SPADE is new . . . to you. But to the engineers and development people at Stampings Inc. it is several years old. During that time this new machine has been severely tested and proved. Now we can offer a larger size POW-R-SPADE confident that it will stand up under toughest digging conditions. Every part is designed and constructed with an extra margin of ruggedness and strength to eliminate breakdown possibilities. Model 7200 digs to 6 ft. deep in widths of 4 and 6 inches; 8 and 12 inch widths to proportional lesser depths.

Built-in towing bar for moving to the job behind car or truck. No trailer is necessary. Four digging speeds up to 15 ft. per minute depending on soil

◀ AMERICA'S MOST POPULAR LIGHTWEIGHT TRENCHER

This is the machine that has won the loyalty and respect of users all around the country since its introduction in 1956. Today there are more in use than any other in its class. Recommended for trenching to lay cable, conduit, pipe, tubing where 3" width by 24" depth is sufficient. In the words of satisfied users . . . "a labor saver, easy to operate, and profitable."

Model 1902. Digs 3" wide to 24" deep or 4" wide to 18" deep. Light weight, compact, portable. Digs 1½ to 17 ft. per minute depending on soil conditions. Digs straight, curves, or angles. One man operation from start to finish. Shipped completely assembled.

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Rock Island, Illinois

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Compact
SUPERIOR
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WIRE

Smaller in size, lighter in weight, neater in appearance, yet with greatly improved electrical, mechanical and physical characteristics. Use it in exposed outside locations, inside positions, or as a combined inside-outside wire.

● **HIGH DENSITY POLYETHYLENE INSULATED COLOR CODED CONDUCTORS...** twisted to minimize cross-talk.

● **ALL-WEATHER, EASY-STRIPPING JACKET OF HIGHEST GRADE POLYVINYL CHLORIDE...** resistant to abrasion, oil, alkalies, and most solvents.

Installs easier and faster, using standard staple-gun procedures. Available with 2, 3, or 4 conductors 22 AWG.

Meets REA Specification PE-20, revised Sept., 1961

For prices, write

SUPERIOR CABLE

Superior Cable Corporation
Hickory, North Carolina

crease interest in their profession.

As a further means of attracting people to science and engineering, companies, such as the M & T Co., and Dr. Lee's organization, have taken steps to speed up the placement of qualified personnel. To accomplish this, faster processing of applications and personal interviews have been devised, thereby de-emphasizing paper work.

Also, promotions to the technical staffs of talented individuals willing to further their study in various technical fields are being encouraged.

Mr. Gladeck concluded, "The strength of the free world has always depended on its ability to meet the challenge of oppressors. As soon as people are alerted to any crisis, the integrity and ingenuity that built America will surpass any advances made by others. I am sure this critical situation will improve as soon as Americans realize what is needed."

Incorporate in Nebraska

Articles of incorporation were filed on Mar. 13 with the Nebraska Secretary of State by the Moorefield Mutual Telephone Co. Incorporators are 54 residents of Frontier County.

Communications Survivability Exhibit Arranged by BDSA

An exhibit keyed to warning of an air invasion, and showing the protective measures to be taken immediately to safeguard telephone, telegraph and cable communications, was opened by Secretary of Commerce Luther H. Hodges in the lobby of the Department of Commerce on Mar. 14.

The exhibit called "Survivability of Communications" is the creation of the Bell System, whose engineers long have been concerned wtih this particular problem. It uses movies, slides and sound effects, with a narrator to tell the story, as an attack is depicted, and commercial communications lines become a vital part of the defensive network guarding the nation.

Spectators see the conclusion from a section of the exhibit designed as an air raid shelter.

The auxiliary facilities that come into service if ordinary channels of

Convention Calendar
1962

Association	*Date*	*City*	*Hotel*
Ohio	Apr. 3 and 4	Columbus	Deshler Hilton
Nebraska	Apr. 18 and 19	Omaha	Sheraton-Fontenelle
Wisconsin	May 8 and 9	Milwaukee	Plankinton
Indiana	May 9 and 10	Indianapolis	Claypool
Kansas-Missouri*	May 21 and 22	Kansas City, Kan.	Town House
Illinois	May 24 and 25	Springfield	Abraham Lincoln
Pennsylvania	June 4, 5 and 6	Bedford	Bedford Springs
New York	June 11, 12 and 13	Whiteface	White Face Inn on Lake Placid
California	June 13 and 14	San Francisco	Jack Tar
Washington Oregon*	June 21 and 22	Portland, Ore.	Sheraton-Portland
Tennessee	Sept. 5 and 6	Nashville	Hermitage Hotel
Arkansas	Sept. 10 and 11	Hot Springs	Arlington Hotel
Nevada	Sept. 11, 12 and 13	Sparks	Sparks Nugget
Georgia	Sept. 13 and 14	Jeckyll Island	Corsair Motel
Michigan	Sept. 18, 19 and 20	Lansing	Jack Tar
Rocky Mountain	Sept. 19, 20 and 21	Salt Lake City, Utah	Utah Hotel Motor Lodge
North Carolina	Sept. 30, Oct. 1, 2 and 3	Pinehurst	Carolina Hotel
New England	Oct. 1, 2 and 3	Poland, Me.	Poland Spring Hotel
USITA	Oct. 22, 23, and 24	Chicago	Conrad Hilton
Virginia	Nov. 8 and 9	Roanoke	Hotel Roanoke
Alabama-Mississippi	Nov. 12 and 13	Birmingham, Ala.	Thomas Jeffersen Hotel
Oklahoma	Nov. 14 and 15	Oklahoma City	Skirvin

*Joint meeting

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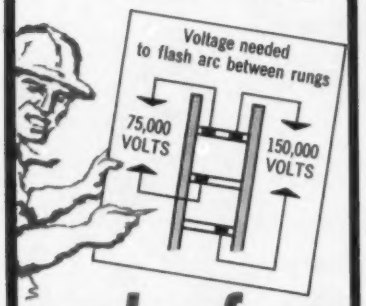
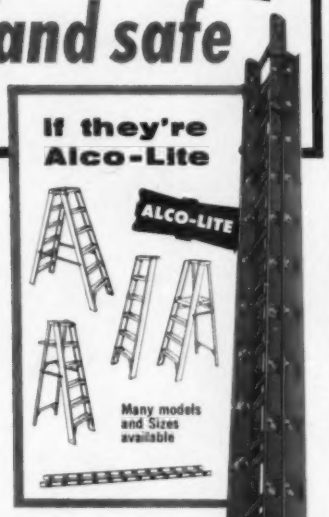


and safe



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Alco-Lite Fiberglass Ladders meet ASA Code A14.2 for portable *metal* ladders. The wider side rails are SOLID fiberglass—not plastic covered soft wood. The wide steps and rungs are high tensile strength aluminum. More riveting and bracing throughout!

Ladders safe, strong, more rigid, have longer life, because of exclusive design and construction. Maintenance negligible. *SEND FOR CATALOG!*

Original Manufacturer of ALUMINUM Ladders

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communications are menaced also are explained.

The exhibit was arranged by the Business and Defense Services Administration (BDSA) through its Communications Industries Division. It will be open daily through Mar. 24 from 10:30 a.m. until 6:30 p.m. The Sunday opening hour will be 12:30 p.m.

Ill. Bell Names Brissenden To Succeed A. T. Renn

Walter F. Brissenden of Springfield, Illinois, has been appointed assistant to the vice president of Illinois Bell Telephone Co., it was announced on Mar. 17 by Robert P. Reuss, state area vice president and general manager.

W. F. BRISSENDEN

Mr. Brissenden, downstate division commercial manager for Illinois Bell since 1955, will report directly to Mr. Reuss and occupy offices in the Illinois Bell headquarters at 628 E. Adams St., Springfield.

In his new capacity, Mr. Brissenden will be responsible for the co-ordination of Illinois Bell's relations with Independent telephone companies throughout the state. He succeeds the late A. T. Renn, whose offices were in Chicago.

A number of Illinois Bell employes assigned to Bell-Independent relations activities will relocate in Springfield and report to Mr. Brissenden, Reuss announced.

Mr. Brissenden said, "It is expected that about 15 persons ultimately will be located in the Springfield organization. Having the Independent relations group in Springfield provides a more centralized location from which our personnel can work with Independent telephone company representatives around the state."

Mr. Brissenden joined Illinois Bell's traffic department in 1929 after working as a reporter on a New Orleans, Louisiana, newspaper.

He later transferred to the commercial department and also has worked in the personnel and sales departments. He was promoted to division commercial manager in Chicago in 1949. He became state area general sales manager in 1950, state area general commercial personnel supervisor in 1954, and division commercial manager in 1955.

A graduate of the University of Alabama, Mr. Brissenden did graduate work at Northwestern University.

He is a past president of the Child and Family Services of Springfield and Sangamon County and recently was appointed by Governor Otto Kerner to serve on the legislative commission on Services to Children and Families.

Safety Council Releases Family Emergency Almanac

A new booklet on off-the-job safety focused on the family and patterned after an old-time almanac is available for business and industry to distribute to their employes.

The 36-page booklet, titled "Family Emergency Almanac," has been prepared by the National Safety Council. Illustrated in the traditional spritely style of almanacs everywhere, it is written to be of interest to the whole family.

The emphasis is on family safety, with details on accident causes and accident prevention. Information ranges from wild animals which can carry rabies, to common poisonous plants, to preventing panic in emergencies. The inside back cover is a directory of emergency telephone numbers.

The family is the strongest force for accident prevention. The skills, habits and attitudes necessary for safe living are taught more readily in the family circle than in any other way.

The booklet's contents include brief articles on outdoor sports and games, fire, hunting and driving safety, first aid and emergency action in different situations.

One page provides full instructions on how to get help fast in an emergency.

The Almanac, stock number 599.66, is available from the National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill., in lots of 50 for 20 cents each, lots of 500 for 16 cents each. Prices on larger orders will be furnished on request.

Fine Balance

When success turns a man's head, he faces failure.

Elect Harder Vice President Of Kirk Properties in Ga.

B. B. Harder, former Durham, N. C. district manager for General Telephone Co. of the Southeast, has been elected vice president of the former Kirk properties in Georgia, which were recently purchased by the General Telephone & Electronics Corp.

Included in these properties are Consolidated Telephone Co., Inc., Gold Leaf Telephone Co., Douglas Telephone Co., The Dalton Telephone Co., Chatsworth Telephone Co., Summerville Telephone Co., Broxton Telephone Co., and Trion Telephone Co.

Mr. Harder will manage the companies for General Telephone and will have his headquarters in Moultrie, Ga., according to H. E. Hussey, president of the properties.

A native of Flint, Mich., he finished high school in Independence, Mo., and attended Graceland Junior College in Lamoni, Ia. He received his B. A. degree in business administration from the University of Kansas, Kansas City, Kan.

Since beginning his telephone career in July, 1939, the new vice president has held positions in several different departments of the company. He became district commercial manager for the Sumter, S. C. area in 1957, and district manager in Durham in 1961.

During World War II, Harder served with the U. S. Air Force in the Philippines and Japan.

Onan Appoints Mil-Penn As Pennsylvania Distributor

Appointment of The Mil-Penn Co., Pottsville, Pa., as exclusive distributors of Onan products was announced on Mar. 12 by Roy E. Mullin, vice president-marketing, Onan Division of Studebaker-Packard Corp.

Effective immediately, Mil-Penn was to represent Onan, in the northeast section of Pennsylvania, formerly serviced by G. E. Supply Co.

The new Onan distributor, located at 115 West Norweigan Street, Pottsville, is headed by Howard Miller. Mr. Miller formerly served as Onan zone manager for nine years in the Pennsylvania area.

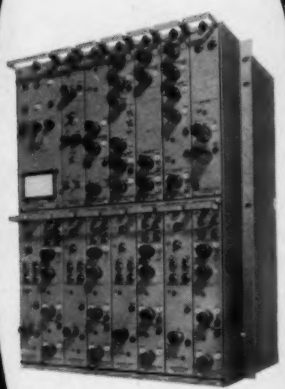
The Mil-Penn Company will carry in stock a selection of Onan Electric Plants up to, and including 15,000-watt capacity, and industrial engines from 7 to 40 horsepower.

Disguise

"A fool, indeed, hath great need of a title; it teaches men to call him count and duke, and to forget his proper name of fool."—CROWNE.

LYNCH

"O"



CARRIER SYSTEMS

Lynch "O" Type carrier systems are designed to operate on an end-to-end carrier basis with Western Electric "O" terminals—operating levels and frequencies are identical. Lynch systems save money on installation and engineering. All units are self-contained and pretested at factory. Alarm facilities include automatic restore feature.

Contact your nearest Graybar representative ... or write for Bulletin B500-B510

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Contact your Graybar Representative or call us direct for complete information

7604

Members of the Graybar/Lynch training school held recently in Athens, Tex., group about Lynch B500 "O" type carrier telephone system used for instruction in installation and maintenance. Five-day training session was conducted by Kes Davis, Lynch field service engineer (standing, right of blackboard). Left to right in photo are: C. C. McCarthy of Gulf States Telephone Co.; H. P. Woolverton of Palestine Telephone Co.; Walter C. Pettigrew of Gulf States; and Roy M. Little, Joe Watterson, Theodore B. Johnson, C. M. Morton, Peter Hammock, all of the Gulf States company; Jerry Foster of Graybar Dallas, Tex. office; Mr. Davis; A. E. Hill, district manager of Gulf States Telephone Co.; Fred Weaver of Gulf States; B. C. Trammell, a district manager for Gulf States; and Oneal Reneau, also of Gulf States. Similar Graybar/Lynch training schools have been held in Reno, Nev.; Billings, Mont.; Salt Lake City, Utah; Mesquite, Nev.; Rapid City, S. D.; DeKalb, Ill.; and at Sioux Falls, S.D.

Life Saver

A New York State Study showed that injuries and deaths were 60 per cent lower in 400 accidents involving people using seat belts than in 400 similar accidents where seat belts were not used. And the U.S. Forest Service says that seat belts have saved at least 100 of its employes from death or serious injury.—*American Medical Association News.*

The Patriot

Where *liberty* dwells, there is my country.—BENJAMIN FRANKLIN.

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...TO YOUR FINGER from Card to wire. No troublesome tabs to remove . . . no chance to drop or lose Brady Markers.

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Manufacturers of Quality Pressure-Sensitive Industrial Tape Products, Self-Bonding Nameplates, Automatic Machines for Dispensing Labels, Nameplates, Masks and Tape
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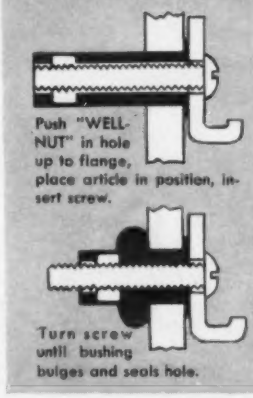
"WELL-NUT"



the ideal blind fastener for many uses in telephony

The "WELL-NUT" dampens vibration . . . muffles noises . . . provides an air-tight, water-tight seal . . . has excellent insulating properties. It is a flanged neoprene bushing with a brass nut bonded inside the narrow end. In making an assembly, the narrow end is inserted into a hole in the inner panel until the flange rests against the outer surface. The outer part of the assembly is placed against the flange with the holes concentric. A conventional screw is then thrust into the bushing and turned into the nut, drawing the latter against the inner surface. The tension on the nut causes the bushing to bulge laterally, tightly sealing the hole and the threads of the screw. Access to the inner surface of the assembly is not necessary. The "WELL-NUT" works equally well in hole or cavity. 13 standard sizes; special sizes available in quantity.

In securing this wall telephone base plate to dry wall, Telephone Companies currently using C-632 Well-Nuts use one or two in the upper slot and one in the bottom slot.

Write For Bulletin and Samples

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Dept. H 146 Central Ave., Newark 3, N. J. • MArket 3-7650

Adam Lender Joins Lenkurt's Advanced Development Lab

Adam Lender is now associated with Lenkurt Electric Co., Inc., San Carlos, Cal. in its advanced development laboratory. His responsibility includes research on high speed digital data and voice communications.

ADAM LENDER

Mr. Lender went to Lenkurt Electric from the International Telephone & Telegraph Federal Laboratories in Nutley, N. J., where he had been project engineer in the digital systems laboratory. His work was primarily in digital communications, and he also headed a group doing research and development on a "single channel secure voice communication system" for the Signal Corps.

Previous to his work at ITTFL, Mr. Lender was with the Bell Telephone Laboratories in Murray Hill, N. J., for six years. While with Bell Laboratories, Mr. Lender worked on high speed digital data communication systems and taught a course in data transmission.

He is a graduate of Columbia University. He received his Electrical Engineer degree in 1960, his MSEE in 1956, and his BSEE in 1954. Mr. Lender also is a 1957 graduate of the Communications Development Training Program of Bell Telephone Laboratories.

He is a member of the Institute of Radio Engineers, Professional Group on Communication Systems, Columbia Engineering School Alumni Association, Inc., Tau Beta Pi, and Eta Kappa Nu.

His publications include the "Application of Digital Data Transmission to Water Monitoring Data", which was presented at a symposium of the U. S. Department of Health, Education and Welfare in Cincinnati, O., 1960; "An

BURY CABLE QUICK

WITH A

PARSONS 150 Trenchliner®

Cost per lineal foot of ditch varies with ground you are working in. But one way to keep that cost on cable work as low as possible is with a Parsons 150 Trenchliner. With the 150 you are always miles and dollars ahead on every digging assignment. Here are the reasons why:

Perfect weight balance — for maximum tractive and digging effort.

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Digs in fast — delivers ditch 16" to 26" wide, down to 5¾' depths at speeds up to 25 feet per minute.

P-204

Write for details

PARSONS COMPANY
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NEWTON, IOWA

Model TBM Mast provides complete service entrance facilities for outdoor telephone booths with the definite plus advantages of lower cost and easier installation. Raises power lines for specified ground clearance.

FITS MOST BOOTHS

Meets Code Requirements

LOOKS BETTER The TBM Mast is engineered for the job. Adds to the appearance of any booth.

LASTS LONGER Heavy gauge steel tubing used throughout for life-time service. Only heavy duty fittings used.

COSTS LESS Actual installations show savings up to two-thirds over conventional installations.

REMOVABLE Can be moved from one location to another. Simply disconnect lines and pull mast out of ground sleeve.

Utility Service Co., Inc.

1620 THIRTEENTH ST. RACINE, WISCONSIN

Experimental Delta Modulator", presented at the Fifth National Symposium on Global Communications in Chicago, Ill., 1961; and an article on "Single Bit Delta Modulating Systems." He has two patent disclosures at Lenkurt Electric for digital communications.

Four Illinois Bell Employes Receive Vail Awards

Chicago, Ill. area employes of Illinois Bell Telephone Co. were recently cited for acts which helped save lives. Four employes, Mrs. William Berger, a Kildare office operator; her supervisor, Mrs. Minnie Taylor; Charles J. Gilman, a Bellwood repairman; and Vincent Doran, Hyde Park repairman, all received Vail Awards for their acts.

Mrs. Berger and Mrs. Taylor received their citations for helping Mrs. John Kissel, who, when sinking into unconsciousness, managed to dial "O" and murmured her doctor's name. Mrs. Berger and Mrs. Taylor located the physician, and sent police and firemen.

Mr. Gilman assisted a man injured in an auto accident in Bellwood. He removed the man from the overturned car, and used his screwdriver to tighten a tourniquet on the man's nearly severed arm. For his quick thinking and prompt action, Mr. Gilman won a bronze Vail medal.

In the case of Mr. Doran, he was returning from a Wisconsin fishing trip when he came upon the scene of an accident. He gave aid to two adults and six children in one car, and to a man and child in the second car. He received an honor citation.

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TWO YOUNG COMMUNICATIONS REPRESENTATIVES presently employed desire sales or commercial work with Independent or distributor, with managerial opportunities. General telephone background with complete knowledge of key and PBX equipment. Have top production records and best references. Write Box No. 4672, c/o TELEPHONY.

AGGRESSIVE TELEPHONE MAN prefers future in management. 13 years diversified experience: plant engineering; transmission; construction, commercial; appraisals; original, RCN and depreciation cost studies; financing and contract relations. Experience in personnel supervision and training program. Available interview June. Write Box No. 4657, % TELEPHONY.

ATTENTION MANUFACTURERS AND SUPPLIERS: Have you requirement for aggressive individual with remarkable understanding telephone industry, its requirements and problems; an individual having successfully developed and promoted ideas and programs to top level management, both large and small organizations? If so, contact this individual who has 13 years experience in telephone engineering and is now interested in entering the promotion field. Available interview early summer. Write Box No. 4658, % TELEPHONY.

POSITION WANTED

OUTSIDE PLANT SUPERINTENDENT, SUPERVISOR, OR FOREMAN. Available after April 10. Experienced in construction, installation, maintenance, and engineering of aerial and buried plant. Also television, radio, radar towers, antennas, coaxial and air dielectric cables, both REA and Bell specifications. Desire to relocate in Ark., Mo., Kan., Okla., Tex. or N. Mex. An opportunity for a small growing company to obtain a top experienced man. Write or contact: Charles Tackett, 322 S.E. 12th, Grand Prairie, Tex.

HELP WANTED

CABLE SPLICER, LINEMAN familiar with Bell System specifications. Needed immediately. Send resume to Box No. 4666, c/o TELEPHONY.

ACCOUNTANT experienced in FCC revenue, disbursement and general books as general auditor and assistant treasurer for growing class A telephone company in Texas; headquarters in county seat. Applicants state age, experience, salary expected and references. Write Box No. 4652, c/o TELEPHONY.

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MAINTENANCE—EQUIPMENT AND OUTSIDE PLANT MAN. Must be fully experienced in Leich, TPL and TPS dial equipment, REA project. Write Box No. 4669, % TELEPHONY.

AMBITIOUS MEN qualified as Station Installers, Equipment Installers, Cable Splicers, Linemen. Work in Midwest. Harris-McBurney Company, Inc., P.O. Box 267, Jackson, Mich.

MANAGER—Central office maintenance combination man; needed at once for one exchange dial system located at Dell City, Tex. Excellent opportunity for a qualified man with telephone cooperative expected to double in size within the near future. Write Dell Telephone Cooperative, Box 125, Brackettville, Tex.

DIVISION PLANT SUPERINTENDENT. For multi-exchange company serving 45,000 stations located in midwest. Applicant must be experienced, including outside plant, central office buildings, carrier application, budgets, and detailed work orders. Salary (plus fringe benefits) commensurate with experience and qualifications. Write Box No. 4671, c/o TELEPHONY.

PLANT ACCOUNTANT, fully qualified to maintain continuing plant records, perpetual inventory controls and construction progress ledgers. Thorough knowledge of time and material reporting required, plus ability to train and supervise employees in related work. Excellent opportunity, with fast-growing Florida Company. Summarize past experience and state acceptable beginning salary in first reply, if between 28 and 45 years of age. Write Box No. 4676, c/o TELEPHONY.

PLANT MANAGER for 3100 modern suburban well financed Independent. S-C 100% dial. Ideal management and working conditions. Growth area. No office or management work. Adequate vacation, Blue Cross etc. An opening for an ambitious young man who is blocked up ahead or for middle aged applicant who can plan ahead as well as operate plant. All applications confidential. No contacts in your community will be made without your special permission. In reply tell us what you can do and how much willing to start. If photo available send. Write George D. Barnard, Box No. 4670, c/o TELEPHONY.

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200	Block, Terminal A.E. #66686-A 3x25 8"L 3-7/16"W.	(New)
99	Coil, Repeating A.E. #283258-A 1:1 Ratio 8.1 Ohms per winding, Relay plate type mounting with Ind. covers	(New)
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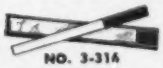

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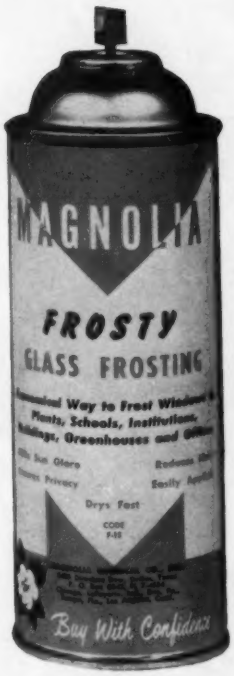

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